



**24<sup>th</sup> International Congress of  
Theoretical and Applied Mechanics**

**24<sup>e</sup> Congrès international de mécanique  
théorique et appliquée**

**Palais des congrès, Montréal, Canada**

**August 21 – 26 août 2016**

# **Program / Programme**



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## Welcome

It is indeed a pleasure and an honour for me to finally welcome you, my colleagues, to Canada and to the fantastic city of Montreal. ICTAM 2016 has taken years of planning and countless hours of work by an entire community. Collectively, we have built a program that I trust you will find both scientifically stimulating and personally rewarding as we explore our field's latest developments with old friends and new contacts. When this Congress is over, I hope that we will all return to our labs with even greater momentum fueling our efforts into the future.

While there are too many individuals to name, I would like to highlight the contributions of several groups: the IUTAM Congress Committee, the International Papers Committee, the Session Chairs and the National Committee reviewers whose dedication has resulted in the program I am proud to present to you today; the National Research Council of Canada, which has acted as our partner in the local management of this congress; all our sponsors and exhibitors and in particular our Gold Sponsor, Virginia Tech's Department of Biomedical Engineering and Mechanics; and finally the volunteers whose participation contributes so much behind the scenes. I thank each and every one of you, and wish you a productive and pleasurable Congress.



**J.M. Floryan,**  
President, 24<sup>th</sup> International  
Congress of Theoretical and  
Applied Mechanics

**Mot de bienvenue**

C'est pour moi un plaisir et un honneur de vous accueillir enfin, chers collègues, au Canada et dans la merveilleuse ville de Montréal. L'ICTAM 2016 a demandé de nombreuses années de planification et d'innombrables heures de travail de la part de toute une communauté. Collectivement, nous avons bâti un programme que vous trouverez, j'en suis convaincu, à la fois stimulant sur le plan scientifique et enrichissant sur le plan personnel, alors que nous explorerons les plus récents progrès réalisés dans notre domaine en compagnie de vieux amis et de nouvelles relations. Une fois le congrès terminé, j'espère que nous regagnerons tous et toutes nos laboratoires dotés d'un élan encore plus puissant qui alimentera nos efforts futurs. Bien qu'ils soient beaucoup trop nombreux pour tous les nommer, j'aimerais tout de même souligner les contributions de quelques groupes : le Comité du congrès de l'IUTAM, le Comité international des communications, les présidents de séance et les examinateurs du Comité national, dont le dévouement a permis la création du programme que j'ai la fierté de vous présenter aujourd'hui; le Conseil national de recherches du Canada, notre partenaire pour la gestion locale de ce congrès; tous nos commanditaires et tous les exposants, en particulier notre commanditaire « Or », le département de génie et de mécanique biomédicaux de Virginia Tech; et finalement, tous les bénévoles dont la participation apporte d'incommensurables contributions en coulisse. Je remercie chacun et chacune d'entre vous et vous souhaite à tous et à toutes un congrès productif et agréable.



**J.M. Floryan,**  
President, 24<sup>th</sup> International  
Congress of Theoretical and  
Applied Mechanics

## **myICTAM2016 – ICTAM 2016 Online Mobile App and Attendee website**

*myICTAM2016* app is user-friendly and simple to navigate. We have created an easy to use mobile app and attendee website that will help you personalize your time at the ICTAM 2016 Congress. This app will serve as the platform for our real-time Scientific Program. Once registered, you can set your own password, maintain your own itinerary and view all scientific sessions including abstract descriptions.

Features include:

- Create a personalized agenda at the Congress
- Connect with attendees, exhibitors and presenters
- Access the full schedule and program including all last minute updates
- View the exhibit hall floor plan
- View the “What to see or where to dine” in Montreal compiled by members of the Planning Committee

**<http://myICTAM2016.zerista.com>**

*myICTAM2016* app is available for the Apple iPhone®, iPad® and iPod Touch® on the Apple iTunes App store and is also available for Android in the Google Play Store. Download Today.

**[https://myICTAM2016.zerista.com/native\\_app/store\\_url](https://myICTAM2016.zerista.com/native_app/store_url)**

For all other mobile and tablet devices, the attendee website is available using your built in browser.

## **Application mobile en ligne *myICTAM2016* – ICTAM 2016 et site Web des participants**

L'application *myICTAM2016* est conviviale et facile à naviguer. Nous avons créé cette application mobile et un site Web à l'intention des participants qui vous aideront à personnaliser votre temps aux congrès de l'Union internationale de cristallographie (ICTAM 2016). L'application servira de plateforme pour notre Programme scientifique en temps réel. Une fois inscrit(e), vous pouvez établir votre propre mot de passe, maintenir votre propre itinéraire et visionner toutes les séances scientifiques y compris les descriptions des résumés.

Capacités :

- Créer un programme personnalisé lors du congrès
- Établir des liens avec les participants, les exposants et les conférenciers
- Avoir accès au calendrier et programme complets y compris toutes les mises à jour de dernière heure
- Visionner le plan d'étage de la salle des exposants
- Visionner le « Guide des visites et des restaurants » à Montréal, compilé par les membres du Comité de planification de l'ICTAM

**<http://myICTAM2016.zerista.com>**

L'application *myICTAM2016* est disponible sur les appareils Apple iPhone®, iPad® et iPod Touch® à la boutique d'applications Apple iTunes ainsi que sur l'androïde à la boutique Google Play.

**Step 1: Get the most out of the Congress –  
Activate and set up your *myICTAM2016* profile**

- Import your photo, add a biography from LinkedIn or add your own!
- Customize your interests (“tags”)
- Share your LinkedIn, Facebook & Twitter links

**Step 2: Start networking**

- Browse the *myICTAM2016* to find Sponsors, Exhibitors, Presenting Companies for Oral or Poster presentations
- You can sort and filter companies and attendees by areas of interest, tracks, country and other combinations
- You can send messages to sponsors, exhibitors and other attendees (your email address remains private until you are ready to share it)

**Step 3: Keep up to date with the latest Scientific presentations and events**

- Search by day, session track, keyword, or type of event to find exactly what interests you at ICTAM 2016
- If you are interested in a particular presenter, view their profile to see their presentation schedule at ICTAM 2016
- Keep up to date with real-time changes to the presenters and presentation schedules

Téléchargez l’application dès aujourd’hui ([https://myICTAM2016.zerista.com/native\\_app/store\\_url](https://myICTAM2016.zerista.com/native_app/store_url)). Avec tous les autres appareils mobiles et tablettes, vous pourrez utiliser le site Web des participants au moyen de votre navigateur intégré.

**Étape 1 : Bénéficiez au maximum du congrès –  
Activez et établissez votre profil *myICTAM2016***

- Importez votre photo, ajoutez une biographie provenant de LinkedIn ou ajoutez la vôtre.
- Personnalisez vos intérêts (mots-clés).
- Partagez vos liens LinkedIn, Facebook et Twitter.

**Étape 2 : Débutez le réseautage**

- Parcourez l’application *myICTAM2016* afin de trouver les commanditaires, les exposants et les entreprises présentatrices pour les présentations orales ou par affiches.
- Vous pouvez trier et filtrer les entreprises et les participants selon les domaines d’intérêt, les lignes directrices, les pays et d’autres combinaisons d’informations.
- Vous pouvez transmettre des messages aux commanditaires, exposants et autres participants (votre adresse de courriel demeure privée jusqu’à ce que vous vouliez la partager).

**Étape 3 : Tenez-vous à jour des dernières présentations et activités scientifiques**

- Consultez l’application selon le jour, les lignes directrices de la séance, le mot-clé ou le type d’activité afin de déterminer exactement ce qui vous intéresse à l’ICTAM 2016.
- Si un conférencier en particulier vous intéresse, visionnez son profil pour voir l’horaire de sa présentation à l’ICTAM 2016.

**Step 4: Customize your ICTAM 2016 experience**

- Plan your own personalized schedule for the time you spend at ICTAM 2016.
- Add sponsors, exhibitors, sessions and events to your *myICTAM2016* schedule to maximize your time with us
- Access your event plan whenever, wherever from your smartphone, desktop or mobile device (ie. Tablet)

**Get Started Today!** Register today to the ICTAM 2016 Congress and we will send you an invite to join the Online Community via *myICTAM2016*. If you have already registered and didn't receive your invite, email us today at:

ictam2016registration@legendconferences.com

- Tenez-vous à jour des changements en temps réel concernant les conférenciers et les horaires de présentation.

**Étape 4 : Personnalisez votre expérience à l'ICTAM 2016**

- Planifiez votre horaire personnalisé pour la durée de votre participation à l'ICTAM 2016.
- Ajoutez les commanditaires, les exposants, les séances et les activités à l'horaire de votre application *myICTAM2016* afin de maximiser le temps que vous passerez avec nous.
- Accédez à votre plan d'activités en tout temps et peu importe l'endroit, à partir de votre téléphone intelligent, bureau ou appareil mobile (tablette).

**Commencez dès maintenant!** Inscrivez-vous aujourd'hui aux congrès de l'ICTAM 2016 et nous vous enverrons une invitation à joindre la communauté en ligne au moyen de *myICTAM2016*. Si vous êtes déjà inscrit(e) et n'avez pas reçu d'invitation, faites-nous parvenir un courriel aujourd'hui à :

ictam2016registration@legendconferences.com

**Wifi (1.5 Mbps) will be available throughout the Palais providing basic internet access to ICTAM 2016 attendees. Both the network and the password are "ICTAM2016".**

**L'Internet sans fil (1.5 Mbps) sera disponible dans le Palais des congrès offrant un accès Internet de base pour les participants à l'ICTAM 2016. Le SSID / Réseau et le code d'accès sont « ICTAM 2016 ».**

**Executive Committee of the IUTAM Congress Committee / Comité exécutif du congrès de l'IUTAM**

**Prof. J.M. (Maciej) Floryan**, (President of the ICTAM 2016 Congress), Western University, London, Canada

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D. (David) Weaver (McMaster University)

J. (Jean) Zu (University of Toronto)

D. (David) Zingg (University of Toronto)

## General Information

### Registration Desk

The registration desk is located in Viger Hall of the Palais des congrès and is open:

Sunday, August 21	07:30 – 17:00
Monday, August 22	07:30 – 18:30
Tuesday, August 23	07:30 – 18:30
Wednesday, August 24	07:30 – 14:00
Thursday, August 25	07:30 – 18:30
Friday, August 26	07:30 – 13:50

### Name Badges

Congress registrants are required to wear their name badge in order to gain entry to the scientific sessions, the exhibition and social activities.

### Scientific Sessions Location

Scientific sessions will be held on Level 5. The Exhibit and Poster Hall is located in 220cd.

### Urgent Messages

During the Congress, it is possible to leave urgent messages by calling the Palais des congrès de Montréal at (514) 871-8122 or at the hotel where the participant is staying.

### Currency and Banking Facilities

Canadian currency is the dollar, which is divided into 100 cents. There are 5, 10, 20, 50, 100 and 1,000 dollar bills. One and two dollar bills have been replaced by coins often referred to as “loonies” (the bird on the \$1 coin is a loon) and “toonies” \$2.

Travelers’ cheques can be cashed at numerous banks and stores (with purchases). There are numerous ATM Bank Machines in downtown Montréal. Banks are generally closed on Sundays in Canada. There is a foreign exchange booth at the Montréal-Trudeau International airport.

### Meals and Refreshments

Hot meals and light meals can be purchased both in and around the Congress venue. During breaks, coffee will be served in the poster and exhibit area in room 220c.

### No Smoking Policy

The Palais is a non-smoking establishment, subject to the Tobacco Act of the Government of Québec in effect since May 31, 2006. There are exterior zones for smokers located at the entrances/exits of the Palais. Pursuant to the provisions of the law, any infraction will incur a fine.

### Lost and Found

For lost or found objects, please address inquiries to a security officer at the Security Operations Center on the main floor or dial 5508 on the house phone. From outside the Palais, you can reach the Security Operations Center by dialing (514) 871-3141.

### Tipping and Gratuities

A tipping rate of 10% to 15% is recommended in Canada for service in restaurants, taxis, hair salons, etc. It is customary to calculate the tip on the subtotal before applicable taxes.

## Renseignements généraux

### Bureau d'inscription

Le bureau d'inscription est situé dans le hall Viger du Centre des congrès de Montréal et est ouvert aux heures suivantes :

Le dimanche 21 août	7 h 30 – 17 h
Le lundi 22 août	7 h 30 – 18 h 30
Le mardi 23 août	7 h 30 – 18 h 30
Le mercredi 24 août	7 h 30 – 14 h
Le jeudi 25 août	7 h 30 – 18 h 30
Le vendredi 26 août	7 h 30 – 13 h 50

### Insignes porte-nom

Tous les congressistes doivent porter leur insigne pour avoir accès aux séances scientifiques, à l'aire d'exposition et pour participer aux activités sociales.

### Emplacement des séances scientifiques

Toutes les séances scientifiques se dérouleront au niveau 5. L'aire des exposants et des affiches sera dans la salle 220cd.

### Messages urgents

Pendant le congrès, il sera possible de laisser des messages urgents en téléphonant le Palais des congrès de Montréal au (514) 871-8122 ou l'hôtel où le participant demeure.

### Services bancaires et devises

La devise canadienne est le dollar, divisé en 100 cents. Le dollar canadien se présente en billets de 5, 10, 20, 50, 100 et 1 000 dollars. Les billets de un et deux dollars ont été remplacé par des pièces appelés « loonies » (l'oiseau sur la pièce de 1 \$ est un huard) et « toonies » de 2 \$.

Les chèques de voyage peuvent être encaissés dans différentes institutions bancaires et magasins (avec achat). Il y a de nombreux guichets automatiques au centre-ville de Montréal. Les banques sont généralement fermées le dimanche au Canada. Il y a un kiosque pour échanger les devises étrangères à l'aéroport Montréal-Trudeau.

### Repas et rafraîchissements

Des repas chauds et des repas légers peuvent être achetés à l'intérieur et autour du Palais des congrès. Les pauses-café seront servies dans l'aire des exposants et affiches, la salle 220c.

### Politique antitabac

Le Palais est un établissement non-fumeur, en accord avec la Loi sur le tabac du gouvernement du Québec en vigueur depuis le 31 mai 2006. Il y a des zones extérieures pour les fumeurs situés aux entrées / sorties du la Palais. Conformément aux dispositions de la loi, toute infraction sera passible d'une amende.

### Objets perdus et trouvés

Pour les objets perdus ou trouvés, s'il vous plaît adressez-vous renseignements à un agent de sécurité au Centre des opérations de sécurité situé à l'étage principal ou composez 5508 sur le téléphone local. De l'extérieur du Palais, vous pouvez rejoindre le Centre des opérations de sécurité en composant le (514) 871-3141.

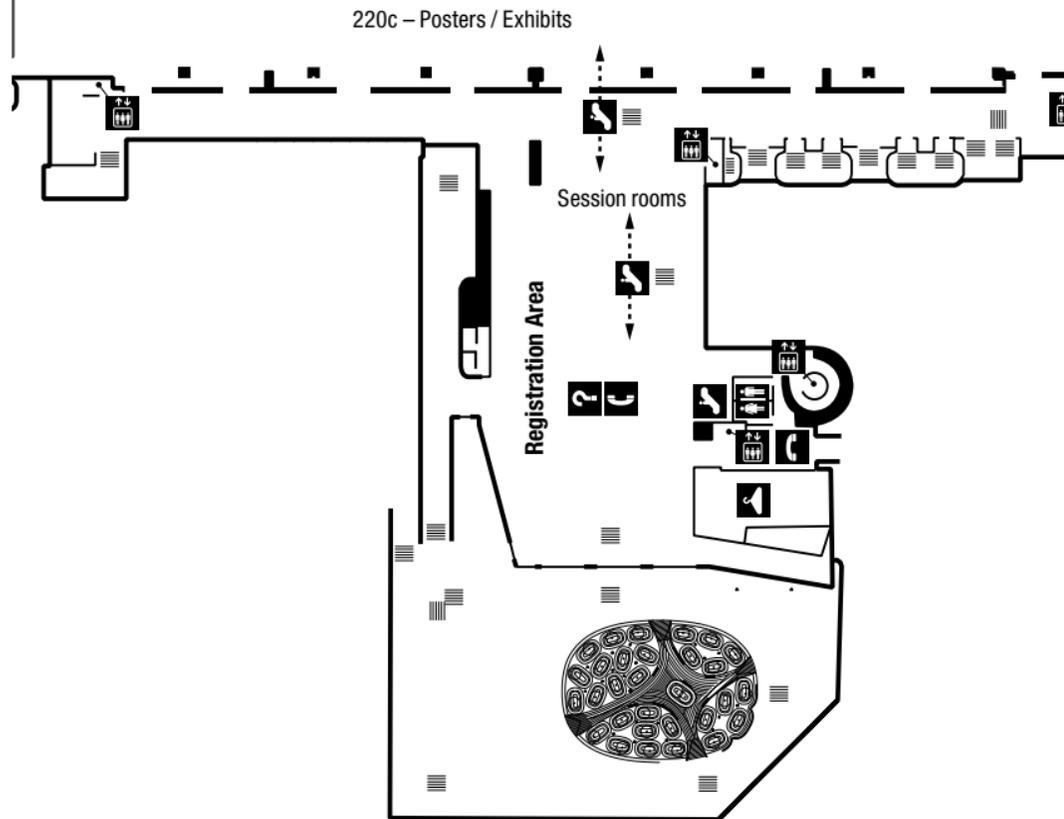
### Pourboires

Au Canada, on recommande de donner un pourboire de 10 à 15% dans les restaurants, les taxis, les salons de coiffure, etc. Habituellement, on calcule le pourboire à partir du montant de la facture avant les taxes.

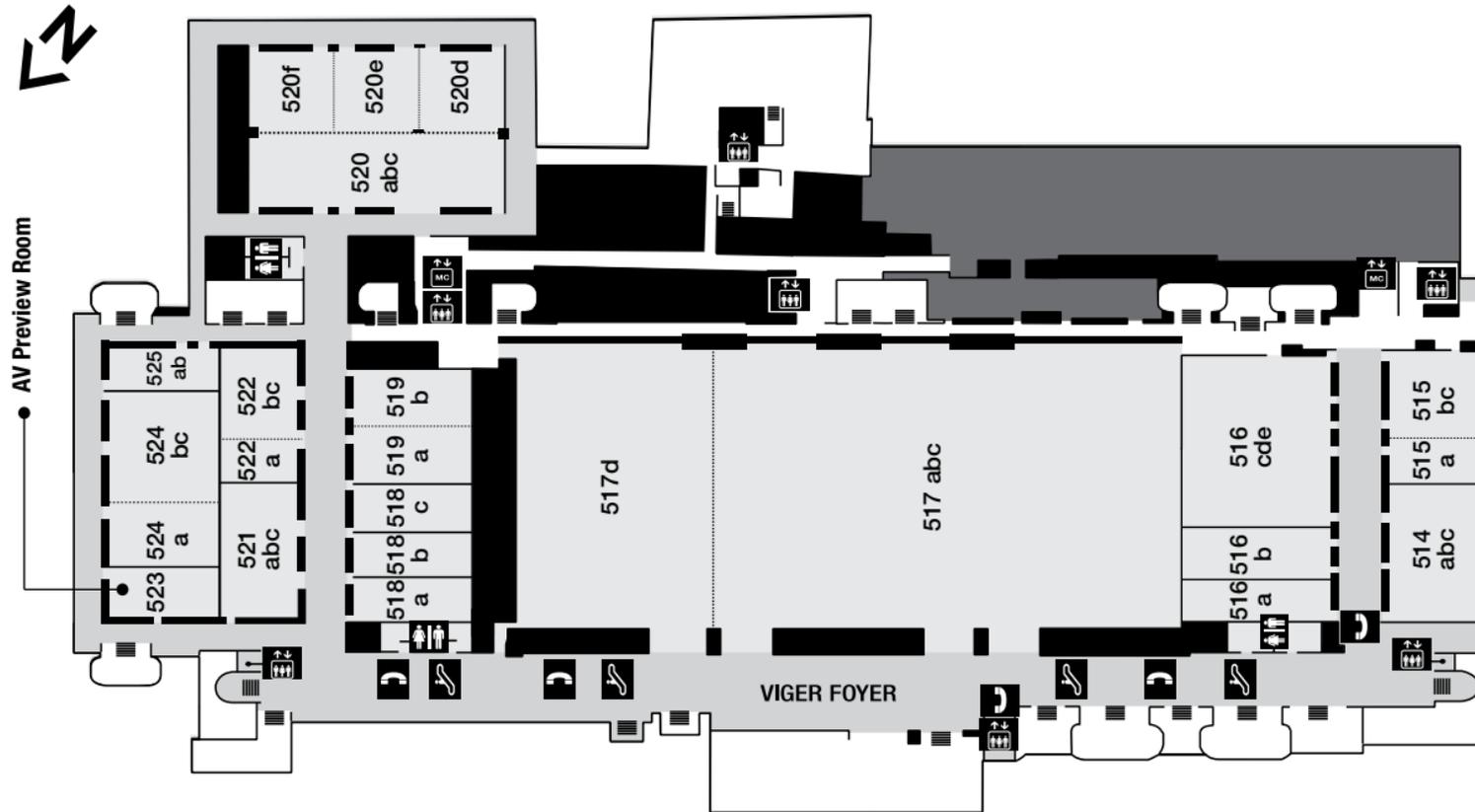
- 1 Hôtel Travelodge Montréal Centre
- 2 Hôtel InterContinental Montréal
- 3 Le Westin Montréal
- 4 Hôtel Zéro 1
- 5 Holiday Inn Select Montréal Centre-Ville (Downtown/Convention Centre)
- 6 Hôtel Faubourg Montréal
- 7 Candlewood Suites
- 8 Hôtel Le Dauphin Montréal Downtown
- 9 Embassy Suites by Hilton Montréal

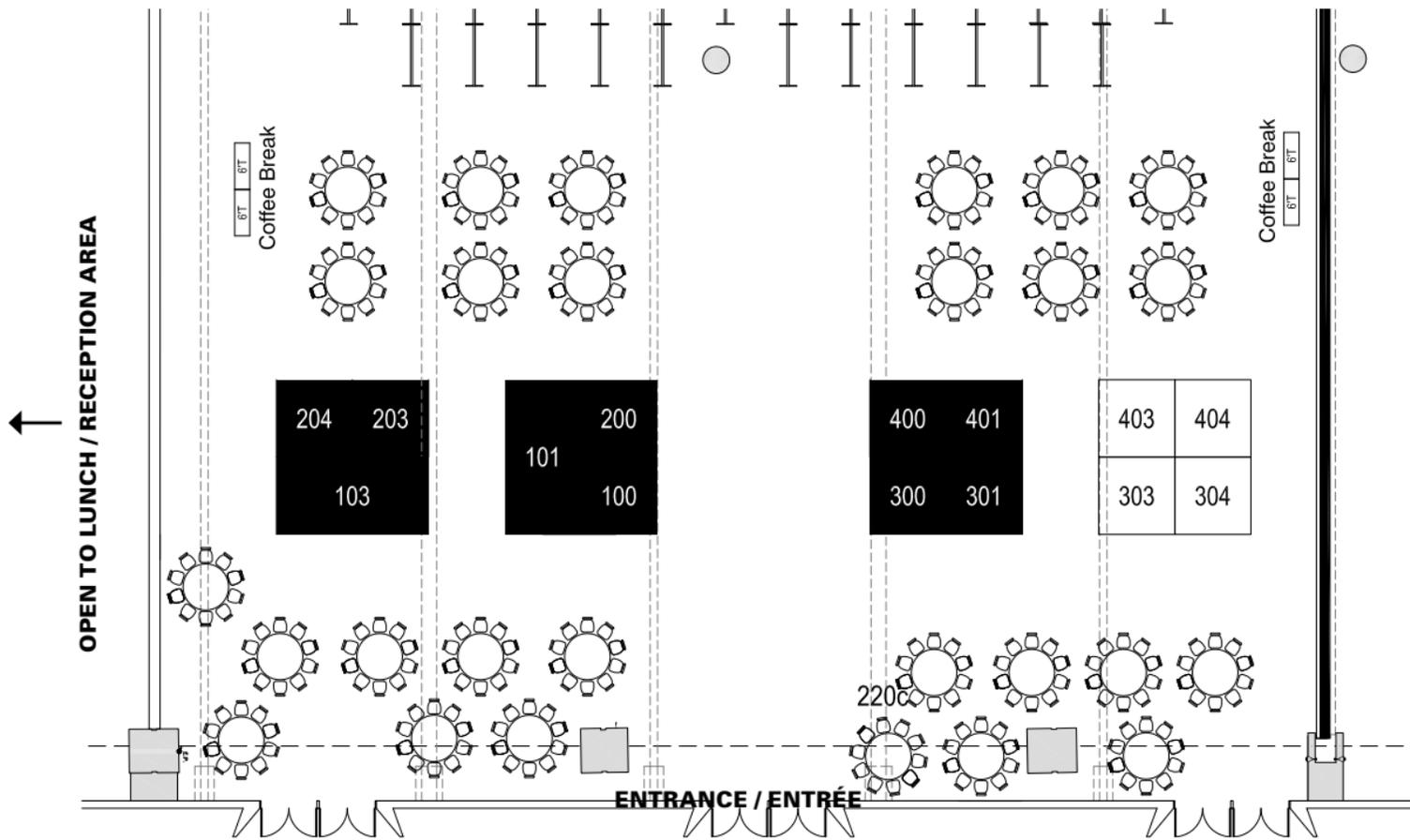


Level 2



## Level 5





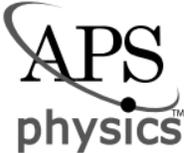
## Exhibit Hours

Monday, August 22	18:00 – 21:00 (Welcome Reception)
Tuesday, August 23	08:30 – 17:30
Wednesday, August 24	08:30 – 13:30
Thursday, August 25	08:30 – 17:30

## Heures de visite

le lundi 22 août	18 h 00– 21 h 00 (Réception d'ouverture)
le mardi 23 août	8 h 30 – 17 h 30
le mercredi 24 août	8 h 30 – 13 h 30
le jeudi 25 août	8 h 30 – 17 h 30

Booth		
300		<p>AIP Publishing is a scholarly publisher in the physical and related sciences that provides a comprehensive collection of highly cited peer reviewed journals. AIP Publishing's portfolio of 19 journals includes prestigious titles such as <i>Applied Physics Letters</i>, <i>Journal of Applied Physics</i> and <i>The Journal of Chemical Physics</i>.</p> <p>AIP Publishing est une maison d'édition spécialisée en physique et dans les sciences connexes. Elle propose une vaste collection de périodiques scientifiques à comité de lecture auxquels on fait souvent référence. Parmi les 19 périodiques constituant son portefeuille figurent des titres prestigieux comme <i>Applied Physics Letters</i>, le <i>Journal of Applied Physics</i> et <i>The Journal of Chemical Physics</i>.</p>

Booth		
204		<p>Founded in 1899, the American Physical Society (APS) is a non-profit membership organization working to advance and diffuse the knowledge of physics. APS publishes the world's most widely read physics research and review journals: <i>Physical Review Fluids</i>, <i>Physical Review Letters</i>, <i>Physical Review X</i>, <i>Reviews of Modern Physics</i>, <i>Physical Review Applied</i>, <i>Physical Review A-E</i>, <i>Physical Review Special Topics</i>, and <i>Physics</i>.</p> <p>Née en 1899, l'American Physical Society (APS) est une organisation à but non lucratif dont les membres œuvrent à l'enrichissement et à la diffusion du savoir en physique. APS publie les périodiques sur la recherche en physique à comité de lecture les plus consultés de la planète : <i>Physical Review Fluids</i>, <i>Physical Review Letters</i>, <i>Physical Review X</i>, <i>Reviews of Modern Physics</i>, <i>Physical Review Applied</i>, <i>Physical Review A-E</i>, <i>Physical Review Special Topics</i> et <i>Physics</i>.</p>
103 / 104		<p>Cambridge University Press' publishing in books and journals combines state-of-the-art content with the highest standards of scholarship, writing and production. Visit our stand to browse new titles, available at 20% discount, and to pick up sample copies of our journals. Visit our website to find out more about what we do: <a href="http://www.cambridge.org/academic">www.cambridge.org/academic</a></p> <p>Les livres et les revues publiés par Cambridge University Press combinent un contenu d'actualité aux normes les plus élevées en matière d'expertise, de rédaction et de production. Visitez notre kiosque pour consulter les nouveaux titres, offerts à 20 % de rabais, et vous procurer des exemplaires de nos revues. Consultez notre site Web pour en savoir plus à notre sujet : <a href="http://www.cambridge.org/academic">www.cambridge.org/academic</a> (<i>en anglais seulement</i>).</p>

Booth		
401		<p>Founded in 1970, the Canadian Society for Mechanical Engineering is a constituent society of the Engineering Institute of Canada (EIC). The CSME provides a wide range of networking and technical activities for mechanical engineers and students. It celebrates excellence through meritorious awards at its congress and communicates through the <i>CSME Bulletin</i> and the <i>CSME Transactions</i>.</p> <p>Créée en 1970, la Société canadienne de génie mécanique est l'une des sociétés membres de l'Institut canadien des ingénieurs (ICE) (disponible en anglais seulement). La SCGM offre aux ingénieurs mécaniciens et à ceux qui étudient dans cette branche une foule d'occasions de réseautage et d'activités techniques. L'association célèbre l'excellence par la remise de prix aux plus méritants durant son congrès et se fait connaître par ses publications <i>Bulletin</i> et <i>Transactions</i>.</p>
301		<p>Concordia University's Faculty of Engineering and Computer Science prepares the next generation of technical leaders and entrepreneurs to address complex real-world problems. We offer a multi-disciplinary and research-engaged environment dedicated to incubating innovation, excellence and success. Our teaching and research is daring and transformative and contributes significantly to a sustainable intellectual and economic development of our community.</p> <p>La Faculté de génie et d'informatique de l'Université Concordia prépare la prochaine génération d'entrepreneurs et de leaders du domaine technique à répondre aux problèmes complexes du monde réel. Nous offrons un environnement multidisciplinaire, axé sur la recherche, qui nourrit l'innovation, l'excellence et la réussite. Nos enseignements et notre recherche, audacieux et transformateurs, contribuent grandement au développement intellectuel et économique durable de notre communauté.</p>

Booth		
200		<p>Elsevier is a leading international publisher of engineering journals, books and electronic products. We are committed to playing an integral part within the engineering community and to participate in the advancement of this field. We are proud to sponsor The Rodney Hill Prize in Solid Mechanics and highlight excellence in mechanics research. Visit our booth to meet publishers and view the latest journal information on theoretical and applied mechanics. We look forward to meeting you!</p> <p>Elsevier est l'une des principales maisons d'édition du monde spécialisée dans les périodiques, les ouvrages et les produits électroniques en génie. L'entreprise s'est engagée à jouer un rôle prépondérant parmi les ingénieurs et à faire avancer le génie. Elle est fière de parrainer le prix Rodney Hill en mécanique des solides et à souligner l'excellence dans la recherche en mécanique. Visitez son kiosque pour faire connaissance avec les éditeurs et découvrir les tout derniers périodiques sur la mécanique théorique et appliquée. Elsevier attend avec impatience de vous rencontrer!</p>
203	<p><b>IOP Publishing</b></p>	<p>IOP Publishing provides a range of journals, ebooks, magazines, websites and services that enable researchers and research organisations to reach the widest possible audience for their research. We combine the culture of a learned society with global reach and highly efficient and effective publishing systems and processes.</p> <p>IOP Publishing offre toute une gamme de revues, de livres numériques, de magazines, de sites Web et de services permettant aux chercheurs et aux organismes de recherche de diffuser leurs travaux auprès du plus large auditoire possible. Nous sommes une société savante de portée mondiale ayant recours à des systèmes et à des processus de publication hautement efficaces et efficients.</p>

Booth		
100		<p>Oxford University Press is the largest university press in the world and publishes across a diverse range of fields. With over 25% of journals ranked in the top 10% of their subject category, OUP is a trusted gateway to the very best scholarly research and resources. Visit our stand to browse books and journals relevant to theoretical and applied mechanics. Journals are free to take.</p> <p>Oxford University Press est le plus grand éditeur universitaire de la planète et ses publications couvrent une multitude de domaines. Avec plus du quart de ses périodiques scientifiques classés dans la tranche de dix pour cent des meilleures publications dans leur domaine respectif, OUP se veut le portail de confiance vers les meilleures recherches et sources d'érudition. Visitez son kiosque pour feuilleter des ouvrages et des périodiques sur la mécanique théorique et appliquée. Les périodiques sont gratuits.</p>
101 / 201		<p>Looking to publish your research? Discover Springer's print and electronic publication services, including open access! Get high quality review, maximum readership and rapid distribution. You can also browse key titles in your field and buy (e) books at discount prices. With Springer you are in good company.</p> <p>Vous cherchez à publier les résultats de votre recherche? Découvrez les services de publication imprimée et électronique de Springer, y compris son service d'accès ouvert! Vos recherches feront l'objet d'analyses de haute qualité par un maximum de lecteurs, à la suite d'une distribution rapide. Vous pouvez également consulter des documents clés dans votre domaine et acheter des livres (électroniques ou imprimés) à prix réduit. Avec Springer, vous êtes en excellente compagnie!</p>

Booth		
400	 <p data-bbox="226 342 517 394">Department of Biomedical Engineering and Mechanics</p>	<p data-bbox="567 151 1542 296">The Virginia Tech Department of Biomedical Engineering and Mechanics combines a history-rich engineering mechanics program with a growing biomedical engineering program. Mechanics forms the foundation for research and educational activities from traditional subjects to interdisciplinary studies of living systems. Virginia Tech is dedicated to quality, innovation, and results that benefit the world.</p> <p data-bbox="567 313 1559 487">Le département de génie biomédical et mécanique de Virginia Tech offre un programme de mécanique doté d'une longue et riche histoire auquel s'est greffé un programme de génie biomédical en pleine expansion. La mécanique est à la base des recherches et des activités pédagogiques qui s'y poursuivent, qu'il s'agisse des sujets classiques ou de l'étude pluridisciplinaire des systèmes vivants. La qualité, l'innovation et des résultats qui bénéficieront à l'humanité sont les valeurs que prône Virginia Tech.</p>



## Gold



Department of Biomedical  
Engineering and Mechanics

The Virginia Tech Department of Biomedical Engineering and Mechanics combines a history-rich engineering mechanics program with a growing biomedical engineering program. Mechanics forms the foundation for research and educational activities from traditional subjects to interdisciplinary studies of living systems. Virginia Tech is dedicated to quality, innovation, and results that benefit the world.

Le département de génie biomédical et mécanique de Virginia Tech offre un programme de mécanique doté d'une longue et riche histoire auquel s'est greffé un programme de génie biomédical en pleine expansion. La mécanique est à la base des recherches et des activités pédagogiques qui s'y poursuivent, qu'il s'agisse des sujets classiques ou de l'étude pluridisciplinaire des systèmes vivants. La qualité, l'innovation et des résultats qui bénéficieront à l'humanité sont les valeurs que prône Virginia Tech.

## Silver



UNIVERSITY OF TORONTO  
FACULTY OF APPLIED SCIENCE & ENGINEERING

The University of Toronto's Faculty of Applied Science & Engineering is Canada's premier engineering school and among the world's best. Founded in 1873, we prepare the next generation of global engineering leaders and advance solutions to critical world challenges through innovative learning opportunities, cross-disciplinary collaboration and groundbreaking research that pushes boundaries and improves lives.

La faculté de génie et de sciences appliquées de l'Université de Toronto est la principale école polytechnique du Canada et l'une des meilleures de la planète. Depuis sa fondation, en 1873, on y forme la future génération de chefs de file internationaux en génie, et travaille à la résolution des grands enjeux de ce monde en misant sur des méthodes d'apprentissage novatrices, sur la collaboration interdisciplinaire et sur des recherches révolutionnaires qui repoussent les frontières du connu en vue de rendre la vie meilleure.

## Bronze



McMaster University has a well-deserved international reputation for excellence in research and innovative education. Consistently ranked amongst the best engineering faculties in Canada, McMaster is recognized for the quality of its faculty members and students, its leadership in cutting-edge research and collaboration with industry, and for its creative educational programs.

L'Université McMaster s'est taillé une renommée internationale bien méritée pour l'excellence de ses recherches et ses méthodes d'enseignement avant-gardistes. Constamment classée parmi les meilleures facultés de génie du Canada, l'université est reconnue pour la qualité de son corps professoral et de ses étudiants, pour son leadership dans la recherche de pointe et la collaboration avec l'industrie, et pour ses programmes d'enseignement inventifs.

## Special



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Department of Biomedical  
Engineering and Mechanics



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engineering school.

**Official Languages / Langues officielles**

Canada is a bilingual country. While services at this Congress are provided in English and French, the Scientific Program component is presented in English only.

Le Canada est un pays bilingue. Alors que les services offerts lors du Congrès sont disponibles en anglais et en français, veuillez prendre note que le programme scientifique est disponible en anglais seulement.

**Mini-Symposia****MS01 Bypass Transition**

Co-chairs: Bruno Eckhardt, Michael Graham

**MS02 Fluid Active Matter**

Co-chairs: William Durham, Federico Toschi

**MS03 Multiphase Flow in the Processing Industry**

Co-chairs: Patrick Anderson, Staffan Lundström

**MS04 Nonlinear Dynamics of Engineering Systems**

Co-chairs: Giuseppe Rega, Dick van Campen

**MS05 Soft Solid Active Matter**

Co-chairs: Vikram Deshpande, Zhigang Suo

**MS06 Topology Optimization**

Co-chairs: Ole Sigmund, Fred van Keulen

**Fluids Topics****FM01 Biological Fluid Mechanics**

Co-chairs: Anette Hosoi, Anne-Virginie Salsac

**FM02 Boundary Layers**

Co-chairs: Beverly McKeon, Xuesong Wu

**FM03 Combustion and Flames**

Co-chairs: Matthew Juniper, Ann Karagozian

**FM04 Compressible Flow**

Co-chairs: Lex Smits, Christian Tenaud

**FM05 Convection**

Co-chairs: Joerg Schumacher, Ke-Qing Xia

**FM06 Drops, Bubbles and Multiphase Flows**

Co-chairs: Jens Eggers, Howard Stone

**FM07 Flow Instability and Transition**

Co-chairs: Francois Gallaire, Genta Kawahara

**FM08 Flow in Thin Films**

Co-chairs: Serafim Kalliadasis, Christian Ruyer-Quil

**FM09 Geophysical and Environmental Fluid Dynamics**

Co-chairs: Paul Billant, Colm-cille Caulfield

**FM10 Low Reynolds Number Flow**

Co-chairs: Elisabeth Guazzelli, Jeff Morris

**FM11 Micro- and Nano-fluidics**

Co-chairs: Carlo Casciola, Guoqing Hu

**FM12 Non-Newtonian and Complex Fluids**

Co-chairs: Ian Frigaard, Gareth McKinley

**FM13 Computational Fluid Dynamics**

Co-chairs: Yukio Kaneda, Paolo Luchini

**FM14 Turbulence**

Co-chairs: Luca Biferale, Toshiyuki Gotoh

**FM15 Vortex Dynamics**

Co-chairs: Morten Brøns, Yasuhide Fukumoto

**FM16 Waves in Fluids**

Co-chairs: John Grue, Yaron Toledo

**FM17 Other Topics in Fluid Mechanics****Solids Topics****SM01 Biomechanics and Biomaterials**

Co-chairs: Gang Bao, Patrick Onck

**SM02 Contact and Friction**

Co-chairs: Irina Goryacheva, Stanislaw Stupkiewicz

**SM03 Damage Mechanics**

Co-chairs: Ron Peerlings, George Voyiadjis

**SM04 Elasticity**

Co-chairs: W. Chen, Pedro Ponte Castaneda

**SM05 Fracture Mechanics**

Co-chairs: Pilar Ariza, K. Ravi-Chandar

**SM06 Geophysics and Geomechanics**

Co-chairs: Nadia Lapusta, Jean-Pierre Vilotte

**SM07 Impact Mechanics and Wave Propagation**

Co-chairs: Gennady Kanel, Andrei Metrikine

**SM08 Multi-component Materials and Composites**

Co-chairs: Nancy Sottos, Pierre Suquet

**SM09 Phase and Chemical Transformations and Thermomechanical Phenomena**

Co-chairs: Samantha Daly, Alexander Freidin

**SM10 Sizescale Effects in Materials**

Co-chairs: Samuel Forest, Christian Niordson

**SM11 Multibody and Vehicle Dynamics**

Co-chairs: Niels Pedersen, Robert Seifried

- SM12 Nanostructures and MEMS**  
Co-chairs: Alberto Corigliano, Horacio Espinosa
- SM13 Plasticity, Viscoplasticity and Creep**  
Co-chairs: Amine Benzerga, Christian Miehe
- SM14 Stability of Structures**  
Co-chairs: Marco Amabili, Katia Bertoldi

- SM15 Computational Solid Mechanics**  
Co-chairs: Stefan Hartmann, Ricardo Lebensohn
- SM16 Vibrations and Control of Structures**  
Co-chairs: Felix Chernousko, Ilmer Santos
- SM17 Other Topics in Solid Mechanics**

**Fluids / Solids Topics**

- FS01 Acoustics**  
Co-chairs: Christophe Bailly, Jakob Jensen
- FS02 Exascale Computing**  
Co-chairs: PK Yeung, Shinobu Yoshimura
- FS03 Experimental Methods in Mechanics**  
Co-chairs: Stuart Dalziel, Yilan Kang, Philippe Petitjeans, Arun Shukla
- FS04 Chaos and Pattern Formation**  
Co-chairs: Igor Mezic, Vered Rom-Kedar
- FS05 Porous Media**  
Co-chairs: Christian Hellmich, Marc Prat

- FS06 Fluid Structure Interactions**  
Co-chairs: Charbel Farhat, Mathias Heil
- FS07 Actuating and Smart Materials**  
Co-chairs: Dimitris Lagoudas, Zheng Zhong
- FS08 Granular Materials and Flows**  
Co-chairs: José Andrade, Yoel Forterre
- FS09 Foams and Cellular Materials**  
Co-chairs: Isabelle Cantat, Stelios Kyriakides
- FS10 Education in Mechanics**  
Co-chairs: Michael Gilchrist, Keith Moffatt

## Other Related Meetings

Other Related Meetings: General		Day	Date	Time	Room
ORM-M-1	US Junior Researchers Mentoring Breakfast	Monday	Aug-22	07:30-08:45	520f
ORM-T-3	Canadian Attendees' Reception	Tuesday	Aug-23	18:00-21:00	Terrace
ORM-T-4	CalTech Reception	Tuesday	Aug-23	19:00-21:00	524a
Other Related Meetings: (IUTAM)		Day	Date	Time	Room
ORM-S-1	XCCC: Executive Committee of the Congress Committee	Sunday	Aug-21	09:00-12:00	445
ORM-S-2	SP: Symposium Panel 1	Sunday	Aug-21	10:30-12:00	441
ORM-S-3	SP: Symposium Panel 2	Sunday	Aug-21	10:30-12:00	440
ORM-S-4	Lunch for XCCC, SP, B	Sunday	Aug-21	12:00-14:00	525ab
ORM-S-5	B: Bureau Meeting	Sunday	Aug-21	14:00-17:00	445
ORM-S-6	Dinner for CC	Sunday	Aug-21	17:00-18:00	525ab
ORM-S-7	CC: Congress Committee	Sunday	Aug-21	18:00-21:00	522bc
ORM-T-1	Dinner for General Assembly	Tuesday	Aug-23	17:30-18:30	520abc
ORM-T-2	General Assembly 1	Tuesday	Aug-23	18:30-21:30	520d
ORM-W-1	General Assembly 2	Wednesday	Aug-24	14:00-17:00	520d
ORM-Th-1	CC: Congress Committee	Thursday	Aug-25	14:00-16:00	525ab
ORM-F-1	Lunch for B	Friday	Aug-26	12:30-13:30	445
ORM-F-2	XCCC: Executive Committee of the Congress Committee	Friday	Aug-26	16:30-18:00	445
ORM-F-3	Dinner for XCCC and B	Friday	Aug-26	18:00-18:30	525ab
ORM-F-4	B: Bureau Meeting	Friday	Aug-26	18:30-20:30	445

The meetings listed on this page are by invitation only and not open to delegates at large.

## Social Program

The Congress has made arrangements with VDM Global DMC for the organization of English-language social tours and activities before, during and after ICTAM 2016. A limited number of tours may be available for onsite purchase, depending on space available. See the registration desk for more information. Delegates wishing to explore Montreal independently can find a wealth of information on Tourisme Montréal's website: [www.tourisme-montreal.org](http://www.tourisme-montreal.org).

### Excursions and Tours

Date	Tour	Time
Sunday, August 21	Tour to Quebec City	08:00 – 20:00
Monday, August 22	Orientation Tour: City of Montreal	13:30 – 16:30
Wednesday, August 24	Flavours and Aromas of Old Montreal	14:00 – 16:30
Wednesday, August 24	City Tour of Montreal	14:00 – 17:00
Wednesday, August 24	Bar Hopping in Old Montreal	17:30 – 19:30
Wednesday, August 24	Old Montreal Walk and Dinner	18:00 – 21:30
Saturday, August 27	Ottawa, Canada's Capital	08:00 – 18:00

### Conditions

Tours take place "rain or shine". No exceptions. A minimum of participants is required for each tour. If the minimum is not reached by August 21, 2016, your tour could be cancelled for lack of participation.

No exchange or reimbursement will be possible after August 21, 2016.

Please present yourself 10 minutes before the departure time in front of the information desk in the Viger Hall of the Palais des Congrès

VDM reserves the right to modify this program (If one of the attractions or establishments mentioned is no longer available at the time that the activity will take place).

## Presenter Instructions

ICTAM 2016 incorporates several different types of presenters, with the main distinctions being between traditional oral presentations, short talks with posters, and session chairs.

### Oral Presentations

Oral presenters have been assigned different amounts of time for their talks, depending on the type of presentation they have been invited to give.

Presentation Type	Length of Talk
Sectional Lectures	50 min/speaker inc. Q&A+changeover
Invited Mini-Symposia (Monday, Aug 22nd, a.m. only)	30 min/speaker inc. Q&A+changeover
Contributed Mini-Symposia and all Parallel Thematic Sessions	20 min/speaker inc. Q&A+changeover
Short Talks with Posters (Short Talk only)	4 min/speaker inc. changeover (no Q&A)

### Computer Presentation Guidelines

All oral presentations will be made using computers provided by the Congress organization. The onsite platform will be PC-based, however there will be mac-based operating systems available for conversion and for presentation if required. A team of seasoned professionals will be available in the Speaker Ready Room to assist with any technical issues that may be encountered.

Uploads of presentations prior to arrival at the congress will be possible and is recommended for large or complex files that may require special attention by the technical team. Full technical details will be sent to each presenting author individually.

All presenters are required to visit the Speaker Ready Room located in room 523AB at least one day before their scheduled presentation time. Each presentation will be sent from the central server to the room where it will be presented. Those who have uploaded their presentations in advance should still report to the Speaker Ready Room to check in and confirm proper receipt of their files.

**Hours of operation for the Speaker Ready Room will be as follows:**

Sunday, August 21	07:30 – 17:00
Monday, August 22	07:30 – 18:30
Tuesday, August 23	07:30 – 18:30
Wednesday, August 24	07:30 – 14:00
Thursday, August 25	07:30 – 18:30
Friday, August 26	07:30 – 12:00

**Delivering Presentations**

Speakers should report to the designated session rooms 15 minutes before the start of the session to meet the session chairs. Speakers can verify their session rooms through the detailed program available on this website, the congress's mobile app, or the printed program they will receive when they check in onsite.

In addition to the support provided in the Speaker Ready Room, technicians will be available in the session rooms for assistance.

**Audio-Visual Equipment**

Session rooms will be equipped with the following:

- 1 large screen
- 1 LCD projector
- 1 laptop computer (PC), networked to the Speaker Ready Room
- 1 podium microphone
- 1 wireless lavalier (lapel) microphone (as appropriate)
- 1 laser pointer

## Short Talks with Poster

ICTAM 2016 presenters of Short Talks with Poster will be given four (4) minutes to speak about their poster, followed by a traditional poster presentation in the poster hall. The Short Talk will take place in an assigned 5th floor lecture room, as with all the other oral presentations. All posters will be presented in the exhibit/poster hall located in room 220CD.

Each presenter will be allowed a maximum of 2 slides, which **MUST** be uploaded in the onsite Speaker Ready Room 24 hours before their scheduled presentation time.

There will be two (2) poster sessions, Tuesday August 23rd and Thursday August 25th.

- Presenters assigned to the first session (PS1) must mount their posters during the Welcome Reception between 18:00 and 19:00 on Monday August 22nd and must remove their posters between 12:50 and 14:00 on Wednesday August 24th.
- Presenters assigned to the second session (PS2) must mount their posters between 7:30 and 8:30 on Thursday August 25th and must remove their posters between 12:10 and 13:10 on Friday August 26th.

The recommended poster size is 0.76 m high x 1 m wide (30" x 40" landscape), and the maximum to be no larger than 1 m x 1 m (40" x 40"). The boards are made of a soft material that accepts Velcro tape. A supply of velcro tape will be available in the poster area for mounting your material.

### Preparing your Poster

- We encourage you to create a colorful and visually engaging poster.
- Please include the abstract title at the top of the poster, as well as the names of all authors and their institutional affiliations. The characters in the title should be at least 2.5 cm (1 inch) in height. Include your contact information (usually an email address).
- Everything on the poster, particularly drawings and charts, should be clear and simple to comprehend visually, not requiring any oral explanation.
- Be sure that your overall message is clear and that adequate background material or results are presented to support the overall message.

Arrangements have been made for those wishing to print their posters onsite. MP Reprographics is located steps from the registration desk. Directions can be given from this area.

**Key to the Poster Numbering System**

The number of the poster board assigned to individuals is listed in the program, in each poster abstract code (i.e. PO.FS.02-2.23.76)

Session					
PO	FM/SM/FS	01/02/03 etc.	-1	.mm	xxx
Presentation type	Thematic Session	topic	block order within session	speaking order within block	board #

**Chairs**

Session chairs should report to the designated session rooms 15 minutes prior to the start of the session to meet the speakers and confirm bio details and presentation titles. Session rooms can be verified through the detailed program available on this website, the congress's mobile app, or the printed program distributed at check in onsite.

The primary role of the chairs is that of a timekeeper for the session. It is important that sessions start on time and that the timing of the presentations be strictly enforced to allow attendees to move from one session to another. In the event of a cancellation, the timing of the other presentations should not be changed. The gap should be used for general discussion and/or a break.

The time allotted to each talk varies according to the type of presentation assigned. The times listed on page 32 include the chairs' introductions, a short Q&A period (except for short talks with posters) and the presenter changeover.

Presentations will be uploaded centrally and will be available in each session room. Technical assistance will be on hand if required.

## Key to the Presentation Numbering System

All presentations delivered at ICTAM 2016 have been assigned a code to help authors and delegates determine the following:

- the presentation type (i.e. Sectional Lecture (SL), Mini-symposium (MS), Oral Parallel Thematic Session (TS), Short Talk with Poster (PO)),
- the Thematic Session (i.e. Fluids, Solids, Fluid/Solids) and the Topic (i.e. Biological Fluid Mechanics, Elasticity, Acoustics)
- the order of the block within the session (some Sessions have up to 10 blocks spread over the entire week)
- the speaking order within the block
- the poster board number for Short Talks with Posters.

An example of a code may be: TS.FM12-4.06. The key to this code is presented below.

### Sectional Lectures

Session*		
SL	FM/SM/FS	-1
Presentation type	Thematic Session	block order within session

### Thematic Sessions

Session				
TS	MS/FM/SM/FS	01/02/03 etc.	-1	.mm
Presentation type	Thematic Session	topic	block order within session	speaking order within block

### Short Talks with Poster

Session					
PO	FM/SM/FS	01/02/03 etc.	-1	.mm	xxx
Presentation type	Thematic Session	topic	block order within session	speaking order within block	board#

\*see full list of Thematic Sessions on page 27

## The Batchelor Prize: Professor Raymond E. Goldstein

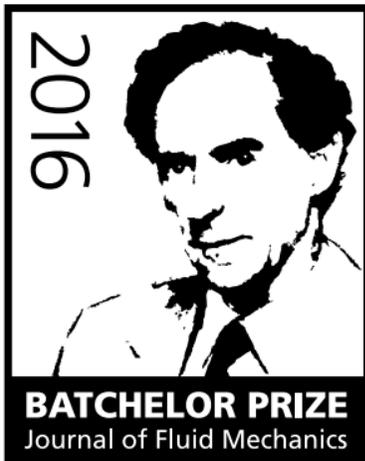


The G K Batchelor Prize for 2016 is awarded to Professor Raymond E. Goldstein FRS, Schlumberger Professor of Complex Physical Systems in the Department of Applied Mathematics and Theoretical Physics and Fellow of Churchill College, University of Cambridge.

The Prize was awarded after an international panel of experts considered nominations, over 150, received from researchers worldwide. This prestigious prize, sponsored by the *Journal of Fluid Mechanics*, is awarded every 4 years at the International Congress of Theoretical and Applied Mechanics to recognise the achievements of an active scientist who has made significant research contributions to fluid mechanics over the previous decade.

Fluid mechanics is pervasive and plays significant roles throughout most branches of science. This was amply demonstrated by the broad range of disciplines spanned by the short-listed candidates for the Prize, which made comparisons between them very difficult but very interesting for the panel. The Batchelor Prize is awarded for published work that is of great current interest, representing an emerging field of application of Fluid Mechanics or a significant breakthrough in an established branch of the subject.

The Prize is awarded for Professor Goldstein's pioneering research into active matter fluid mechanics, including work on collective behaviour in bacterial suspensions, synchronisation of flagella in eukaryotic cells and the surface interactions of swimming microorganisms. In particular, the Prize acknowledges the extraordinary degree of experimental sophistication employed to measure flow fields around active suspensions, which, coupled with theoretical insight, has led to significant advances in the understanding of cell transport and the evolution of multicellular systems.



## The Rodney Hill Prize: Dr. Raymond Ogden

Elsevier and the International Union of Theoretical and Applied Mechanics jointly awarded the 2016 Rodney Hill Prize for contributions to the field of Solid Mechanics to Dr. Raymond Ogden of the University of Glasgow. This prize was founded by and is sponsored by Elsevier. Dr. Ogden currently holds the George Sinclair Chair of Mathematics in the School of Mathematics and Statistics of the University of Glasgow. He completed work toward a PhD degree in solid mechanics and applied mathematics at Cambridge University under the guidance of Professor Hill.

Throughout his distinguished career, Ogden has pioneered in the development of the continuum mechanics framework for the study of nonlinear material behavior and large deformation continuum mechanics. The constitutive law he proposed for rubber-like materials has been broadly adopted as a basis for numerical simulation. His 1984 book on Non-linear Elastic Deformations has become a classic in the field. Beginning with the constitutive description of rubber-like materials, now known as the Ogden model, he has developed constitutive descriptions of biological materials. In the past ten years, he has developed computational models of arterial walls that have been integrated into most commercial finite element codes. More recently, he has also pioneered in the development of constitutive descriptions for large amplitude deformation of soft materials that exhibit electromagnetic behavior.



# ELSEVIER

## Special Lectures and Presentations

08:30 – 10:00

08:30-9:00

**Opening Ceremony**

09:00-10:00

**OL – Opening Lecture***Chair: Michael Paidoussis*

Peltier, W. Richard: Ocean turbulence and climate history  
*Room 517abc*

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MONDAY, AUGUST 22 | MORNING

10:20-10:50

10:50-11:20

11:20-11:50

11:50-12:20

	TS.MS01-1 525ab	TS.MS02-1 520abc	TS.MS03-1 519ab	TS.MS04-1 517d
	<b>MS01 - Bypass Transition</b> <i>Chair: Michael Graham</i>	<b>MS02 - Fluid Active Matter</b> <i>Chair: Federico Toschi</i>	<b>MS03 - Multiphase Flow in the Processing Industry</b> <i>Chair: Patrick Anderson</i>	<b>MS04 - Nonlinear Dynamics of Engineering Systems</b> <i>Chairs: Giuseppe Rega &amp; Dick van Campen</i>
	<b>TS.MS01-1.01 (INVITED)</b> Hof, Björn: Directed percolation transition to turbulence	<b>TS.MS02-1.01 (INVITED)</b> Goldstein, Raymond: Collective Behaviour of Confined Bacterial Suspensions	<b>TS.MS03-1.01 (INVITED)</b> Pillai, Krishna M.: Current challenges in upscaling multiphase flows in porous media using the volume averaging method	<b>TS.MS04-1.01 (INVITED)</b> Perkins, Noel C: Simulating nonlinear dynamical transitions of single molecule DNA
	<b>TS.MS01-1.02 (INVITED)</b> Gibson, John: Exact coherent structures in transitional flows: Dynamics and localization	<b>TS.MS02-1.02 (INVITED)</b> Pagonabarraga Mora, Ignacio: Hydrodynamic cooperativity and self-organization in active suspensions	<b>TS.MS03-1.02 (INVITED)</b> Rao, Rekha: The fluid mechanics of polyurethane foam expansion and polymerization	<b>TS.MS04-1.02 (INVITED)</b> Dankowicz, Harry: On the Analysis of Chatter in Mechanical Systems with Impacts
	<b>TS.MS01-1.03 (INVITED)</b> Gayme, Dennice: Restricted Nonlinear Roll/Streak Dynamics in Plane Couette Flow	<b>TS.MS02-1.03 (INVITED)</b> Gompper, Gerhard: Collective behaviour of active-particle suspensions	<b>TS.MS03-1.03 (INVITED)</b> Sommerfeld, Martin: Modelling Requirements for Particle Agglomeration in Fluid Flows	<b>TS.MS04-1.03 (INVITED)</b> Leine, Remco: Synchronization-based estimation of the maximal Lyapunov exponent of nonsmooth systems
	<b>TS.MS01-1.04 (INVITED)</b> Hall, Philip: Sitting on the edge of turbulence	<b>TS.MS02-1.04 (INVITED)</b> Ramaswamy, Sriram: Active granular monolayers	<b>TS.MS03-1.04 (INVITED)</b> Collino, Rachel: Scaling relationships describing microfluidic acoustic nozzles for 3D-printing	<b>TS.MS04-1.04 (INVITED)</b> Lenci, Stefano: Nonlinear coupling between axial and transversal oscillations of shearable beams

TS.MS05-1	516cde	TS.MS06-1	516ab
<b>MS05 - Soft Solid Active Matter</b> <i>Chair: Edoardo Mazza</i>		<b>MS06 - Topology Optimization</b> <i>Chair: Fred van Keulen</i>	
<b>TS.MS05-1.01</b> (INVITED) Huang, Yonggang: Mechanically Guided, Deterministic Three-Dimensional Assembly		<b>TS.MS06-1.01</b> (INVITED) Allaire, Grégoire: Deterministic approaches for shape optimization under random uncertainties	
<b>TS.MS05-1.02</b> (INVITED) Mazza, Edoardo: The intriguing deformation behavior of soft biomembranes		<b>TS.MS06-1.02</b> (INVITED) Guest, James: Projection-based topology optimization algorithms for advanced manufacturing	
<b>TS.MS05-1.03</b> (INVITED) Saif, Tahir: Soft neurons actively maintain strong tension for synaptic functions		<b>TS.MS06-1.03</b> (INVITED) Sigmund, Ole: On convergence speedup in topology optimization	
<b>TS.MS05-1.04</b> (INVITED) Zhao, Xuanhe: Mechanochemically Responsive Elastomers: Fundamental and Applications		<b>TS.MS06-1.04</b> (INVITED) Tortorelli, Daniel: Topology optimization under uncertainty via non-intrusive polynomial chaos expansions	

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MONDAY, AUGUST 22 | EARLY AFTERNOON

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TS.MS01-2	525ab
<b>MS01 - Bypass Transition</b> <i>Chair: Bruno Eckhardt</i>	
<b>TS.MS01-2.01</b>	Sano, Masaki: Universal critical behavior of the transition to turbulence in channel flow
<b>TS.MS01-2.02</b>	Duguet, Yann: Localized structures on the edge in boundary layers and their traces in bypass transition
<b>TS.MS01-2.03</b>	Kushwaha, Anubhav: Temporal and spatial intermittencies within Newtonian turbulence
<b>TS.MS01-2.04</b>	Nagata, Masato: Bifurcations in rotating plane Couette flow at moderate Reynolds numbers
<b>TS.MS01-2.05</b>	Xi, Li: Effects of drag-reducing polymers on the transient development of turbulent coherent structures
<b>TS.MS01-2.06</b>	Dubief, Yves: The role of elasto-inertial turbulence on channel flow drag

TS.MS02-2	520abc
<b>MS02 - Fluid Active Matter</b> <i>Chair: Federico Toschi</i>	
<b>TS.MS02-2.01</b>	Michalec, François-Gaël: Copepod escape and relocation jumps in turbulence
<b>TS.MS02-2.02</b>	Saintillan, David: Transition to spontaneous directional flows in confined active fluids
<b>TS.MS02-2.03</b>	Popescu, Mihail: Effective interactions between chemically active colloids and surfaces
<b>TS.MS02-2.04</b>	Wan, Kirsty: Stochastic gait-switching in flagellate microalgae
<b>TS.MS02-2.05</b>	DeSimone, Antonio: Metabolism in euglenids: a model and its experimental validation
<b>TS.MS02-2.06</b>	Berti, Stefano: Effects of Discreteness on Population Persistence in an Oasis

TS.MS04-2	517d
<b>MS04 - Nonlinear Dynamics of Engineering Systems – Rigid Body Systems</b> <i>Chairs: Gábor Stépán &amp; Oded Gottlieb</i>	
<b>TS.MS04-2.01</b>	Chernousko, Felix: Optimization of locomotion for multibody systems moving along a plane
<b>TS.MS04-2.02</b>	Kelly, Scott: Entrainment and multiscale dynamics in vibrationally driven nonholonomic systems
<b>TS.MS04-2.03</b>	Pfeiffer, Friedrich: MBS Approach for a Chain Fountain
<b>TS.MS04-2.04</b>	Kirillov, Oleg: Precession on a rotating saddle: A gyro force in an inertial frame
<b>TS.MS04-2.05</b>	Shimomura, Yutaka: Freaky motion of a spinning spheroid induced by a slight break of its axial symmetry
<b>TS.MS04-2.06</b>	Naprstek, Jiri: Gibbs-Appel Formulation of Non-Holonomic Motion of a Ball on a Spherical Surface

TS.MS05-2	516cde
<b>MS05 - Soft Solid Active Matter</b> <i>Chair: Liying Jiang</i>	
<b>TS.MS05-2.01</b>	Safran, Samuel: Mechanical synchronization of active beating within and between cardiomyocytes
<b>TS.MS05-2.02</b>	McGarry, Patrick: On the Free Energy of Cells Spread on Micropatterned Substrates
<b>TS.MS05-2.03</b>	Vernerey, Franck: Catch bonds and mechano-sensitivity of acto-myosin filament networks
<b>TS.MS05-2.04</b>	Feng, Xi-Qiao: Biochemomechanical poroelastic theory of tumor growth
<b>TS.MS05-2.05</b>	Noselli, Giovanni: Hydraulic fracture and toughening of epithelial cell monolayers
<b>TS.MS05-2.06</b>	Holmes, Douglas: Geometry and Mechanics of Shell Growth

TS.MS06-2 516b	TS.FM02-1 520e	TS.FM06-1 524bc	TS.FM12-1 520f
<b>MS06 - Topology Optimization – micro, nano and multiscale applications</b> <i>Chair: Ole Sigmund</i>	<b>FM02 - Boundary Layers</b> <i>Chair: Beverly McKeon</i>	<b>FM06 - Drops, Bubbles and Multiphase Flows</b> <i>Chair: Howard Stone</i>	<b>FM12 - Non-Newtonian and Complex Fluids</b> <i>Chair: Ian Frigaard</i>
<b>TS.MS06-2.01</b> Cheng, Gengdong: Two-scale topology optimization based on Moving Morphable Components (MMC)	<b>TS.FM02-1.01 (INVITED)</b> Morrison, Jonathan: The inertial subrange in turbulent pipe flow	<b>TS.FM06-1.01 (INVITED)</b> Clanet, Christophe: Giant Soap Bubbles	<b>TS.FM12-1.01 (INVITED)</b> Dimakopoulos, Yannis: What is the role of blood elasticity in the formation of CFL in microvessels?
<b>TS.MS06-2.02</b> Benard, Andre: Topology optimization and design of solid particles in suspension	<b>TS.FM02-1.02</b> Tardu, Sedat: Fine structure of near wall dissipation	<b>TS.FM06-1.02 (INVITED)</b> Lister, John: Bubble coalescence at any Reynolds number	<b>TS.FM12-1.02</b> Shinbrot, Troy: Paradoxical flows in complex fluids
<b>TS.MS06-2.03</b> Cherkaev, Andrej: Optimal multimaterial composite structures and optimal designs	<b>TS.FM02-1.03</b> Monkewitz, Peter: How comparable are the three “canonical” turbulent flows?	<b>TS.FM06-1.03</b> Barakat, Joseph: The motion of a closely fitting vesicle in a tube	<b>TS.FM12-1.03</b> Bryngelson, Spencer: Buckling and the rheology of an elastic capsule suspension
<b>TS.MS06-2.04</b> Burczynski, Tadeusz: Topology Optimization in Nano-Scale for Generation of New Graphene-Like Materials	<b>TS.FM02-1.04</b> De Giovanetti, Matteo: Skin friction generation by attached eddies in a turbulent channel	<b>TS.FM06-1.04</b> Biben, Thierry: Laser generated nano-bubbles around nano-particles	<b>TS.FM12-1.04</b> Harlen, Oliver: Capillary thinning and break-up of particulate suspensions
<b>TS.MS06-2.05</b> Andreasen, Casper: On topology optimization of inertia driven dosing units	<b>TS.FM02-1.05</b> Diaz Daniel, Carlos: A conceptual model for the filtered wall-shear stress statistics in turbulent boundary layers	<b>TS.FM06-1.05</b> Bird, James: The residence time of a drop on a spoked macrotexture	<b>TS.FM12-1.05</b> Muradoglu, Metin: Impact and spreading of a viscoelastic droplet on a solid surface
<b>TS.MS06-2.06</b> Duysinx, Pierre: Generalized SFP parameterization for topology optimization including lattice structures	<b>TS.FM02-1.06</b> Byers, Clayton: Turbulent temperature measurements in water	<b>TS.FM06-1.06</b> Gong, Shi Wei: Bubble oscillating near a deformable sphere in water	<b>TS.FM12-1.06</b> Leal, Gary: Flow induced inhomogeneity for a polymer solution in oscillatory shear flow

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	TS.FM13-1 520d	TS.FM14-1 524a	TS.FM16-1 521abc	TS.SM04-1 516a
	<b>FM13 - Computational Fluid Dynamics</b> <i>Chair: Yukio Kaneda</i>	<b>FM14 - Turbulence</b> <i>Chair: Luca Biferale</i>	<b>FM16 - Waves in Fluids</b> <i>Chair: John Grue</i>	<b>SM04 - Elasticity</b> <i>Chair: Weiqiu Chen</i>
13:20-13:40	<b>TS.FM13-1.01 (INVITED)</b> Moser, Robert: Treating anisotropy in LES subgrid models	<b>TS.FM14-1.01 (INVITED)</b> Oberlack, Martin: Circumnavigating the closure problem of turbulence- A lie symmetry approach	<b>TS.FM16-1.01 (INVITED)</b> Toledo, Yaron: A nonlinear triad interaction source term for wave forecasting models	<b>TS.SM04-1.01 (INVITED)</b> Ashida, Fumihiro: Control of complicated stress oscillations in FGPM thin plates
13:40-14:00	<b>TS.FM13-1.02</b> Lamballais, Eric: Explicit vs. implicit subgrid-scale modelling for les	<b>TS.FM14-1.02</b> Tatsumi, Tomomasa: Statistical normality of homogeneous isotropic turbulence	<b>TS.FM16-1.02 (INVITED)</b> Babanin, Alexander: Turbulence induced by surface water waves	<b>TS.SM04-1.02</b> Banerjee, Amartya: A framework for frequently occurring non-generic degeneracies
14:00-14:20	<b>TS.FM13-1.03</b> Schlatter, Philipp: Pressure gradient turbulent boundary layers developing around a wing section	<b>TS.FM14-1.03</b> Okamura, Makoto: A Lagrangian closure approximation for homogeneous isotropic turbulence	<b>TS.FM16-1.03</b> Perrard, Stéphane: Surface waves on levitating liquid	<b>TS.SM04-1.03</b> Dai, Hui-Hui: On a consistent shell theory based on finite elasticity
14:20-14:40	<b>TS.FM13-1.04</b> Vidal, Alvaro: Influence of duct corner geometry on secondary flow: Convergence from square duct to pipe	<b>TS.FM14-1.04</b> Pollard, Andrew: Hot-wire spatial resolution effects in measurements of turbulent round jets	<b>TS.FM16-1.04</b> Mizuta, Yo: Numerical and theoretical analyses on interface wave of magnetic fluids	<b>TS.SM04-1.04</b> Kapuria, Santosh: Accurate prediction of free edge effect in piezolaminated panels
14:40-15:00	<b>TS.FM13-1.05</b> Kim, Pilbum: Non-equilibrium effects on hypersonic turbulent boundary layers	<b>TS.FM14-1.05</b> Nedi, Jovan: Energy dissipation scaling in uniformly sheared and in multi-structure turbulence	<b>TS.FM16-1.05</b> Vogt, Tobias: Investigation of inertial waves inside a liquid metal column by means of electromagnetic fields	<b>TS.SM04-1.05</b> Liu, Liping: Geometrically nonlinear theories for curved beams and shells
15:00-15:20	<b>TS.FM13-1.06</b> Köthe, Thomas: Adjoint shape optimization based on DNS of turbulent channel flow	<b>TS.FM14-1.06</b> Kobayashi, Hiromichi: Energy transfer across scales around elliptic Burgers vortices	<b>TS.FM16-1.06</b> Steinrück, Herbert: Asymptotic analysis of a rotary wave in a cylindrical container	<b>TS.SM04-1.06</b> Weller, Thibaut: Mathematical modeling of thin linearly quasicrystalline plates

TS.SM05-1 519b	TS.SM06-1 518a	TS.SM07-1 515a	TS.SM09-1 518b
<b>SM05 - Fracture Mechanics</b> <i>Chair: Emmanuel Villermaux</i>	<b>SM06 - Geophysics and Geomechanics</b> <i>Chair: tba</i>	<b>SM07 - Impact Mechanics and Wave Propagation</b> <i>Chair: Eugene Zaretsky</i>	<b>SM09 - Phase and Chemical Transformations and Thermo-mechanical Phenomena</b> <i>Chair: Alexander Freidin</i>
<b>TS.SM05-1.01 (INVITED)</b> Heyden, Stefanie: Towards a one-parameter fracture model in soft matter mechanics	<b>TS.SM06-1.01 (INVITED)</b> Fialko, Yuri: Velocity-weakening behavior of granite and gabbro at temperature up to 600 degrees C	<b>TS.SM07-1.01 (INVITED)</b> Chen, Wayne: High-speed damage visualization and xrd in materials under impact	<b>TS.SM09-1.01 (INVITED)</b> Guduru, Pradeep: The influence of elastic strain on catalytic activity
<b>TS.SM05-1.02</b> Moulinet, Sébastien: Fracture patterns in exploding balloons	<b>TS.SM06-1.02</b> Jiang, Junle: Variability of earthquake slip and arresting depths in fault models	<b>TS.SM07-1.02</b> Thevamaran, Ramathanan: Dynamic Behaviour of Single Crystalline Silver Microcubes	<b>TS.SM09-1.02</b> Belyaev, Alexander: An approach to modeling the effect of hydrogen on stress-strain material law
<b>TS.SM05-1.03</b> Kroon, Martin: Dynamic crack propagation in rubber	<b>TS.SM06-1.03</b> Higgins, Natalie: Exploring models of foreshock sources using rate-and-state friction	<b>TS.SM07-1.03</b> Kettenbeil, Christian: Experimental investigation of the dynamic behavior of metaconcrete	<b>TS.SM09-1.03</b> Di Leo, Claudio: Chemo-mechanics theory for amorphous Silicon electrodes
<b>TS.SM05-1.04</b> Bouklas, Nikolaos: Effect of Solvent Diffusion on Fracture of Hydrogels	<b>TS.SM06-1.04</b> Kotov, Vasiliy: Experimental studies and mathematical modeling for dynamic deformation of soils	<b>TS.SM07-1.04</b> Kanel, Gennady: Appearance of dislocations multiplication in the dynamics of elastic-plastic waves in solids	<b>TS.SM09-1.04</b> Freidin, Alexander: Chemical affinity tensor and kinetics of stress-assisted chemical reaction front
<b>TS.SM05-1.05</b> Liu, Zhanli: Hydraulic fracture in porous media	<b>TS.SM06-1.05</b> Lui, Semechah K. Y.: Physics-based elastodynamic modeling of interacting frictional shear cracks	<b>TS.SM07-1.05</b> Schwab, Martin: Modelling Laminated Fabric Composites under Impact Loads	<b>TS.SM09-1.05</b> Song, Jizhou: Purification of single-walled carbon nanotubes based on thermocapillary flow
<b>TS.SM05-1.06</b> Barthelat, Francois: Overcoming brittleness through bio-inspired and microarchitecture	<b>TS.SM06-1.06</b> Creyts, Timothy: Recirculating Ice Eddies in Subglacial Valleys	<b>TS.SM07-1.06</b> Matthes, Melissa: Hypervelocity impact of Ti6Al4V alloy materials	

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TS.SM10-1	518c
<b>SM10 - Sizescale Effects in Materials</b> <i>Chair: Christian Niordson</i>	
<b>TS.SM10-1.01</b> (INVITED) Geers, Marc: On the role and modelling of internal boundaries in size effects for metals	
<b>TS.SM10-1.02</b> Mesarovic, Sinisa: Size-dependent Energy of Elastic-plastic Crystals	
<b>TS.SM10-1.03</b> Svendsen, Bob: Strongly versus weakly non-local dislocation transport and pile-up	
<b>TS.SM10-1.04</b> Du, Chaowei: The role of sub-structure boundaries on lath martensite plasticity	
<b>TS.SM10-1.05</b> Hochrainer, Thomas: Small scale plasticity simulated with continuum dislocation dynamics	
<b>TS.SM10-1.06</b> Zhuang, Zhuo: Discrete dislocation-based crystal plasticity at micron-nano scales	

TS.SM14-1	515bc
<b>SM14 - Stability of Structures</b> <i>Chair: Marco Amabili</i>	
<b>TS.SM14-1.01</b> (INVITED) Bigoni, Davide: Flutter and dissipation instabilities in structures subject to dry friction follower forces	
<b>TS.SM14-1.02</b> Zippo, Antonio: Experimental investigation of dynamic behaviour of pre-compressed circular cylindrical shell	
<b>TS.SM14-1.03</b> Ford, Matthew: Buckling and collapse of the bicycle wheel	
<b>TS.SM14-1.04</b> Formica, Giovanni: Nanocomposite microbeams for sensing applications	
<b>TS.SM14-1.05</b> Galich, Pavel: Elastic wave propagation in highly deformable layered materials	
<b>TS.SM14-1.06</b> Hadrien, Bense: Instabilities in dielectric elastomer plates	

TS.FS01-1	522bc
<b>FS01 - Acoustics</b> <i>Chair: Luc Mongeau</i>	
<b>TS.FS01-1.01</b> (INVITED) Mao, Yijun: Convective vector wave equation of aeroacoustics	
<b>TS.FS01-1.02</b> (INVITED) Mongeau, Luc: Mechanical characterization of collagen I fibrils through 3-point bending using AFM	
<b>TS.FS01-1.03</b> (INVITED) Page, John: Acoustic bubble metascreen for broadband superabsorption of waterborne acoustic waves	
<b>TS.FS01-1.04</b> (INVITED) Sánchez-Dehesa, José: Rainbow trapping of torsional waves in a chirped rectangular beam	
<b>TS.FS01-1.05</b> Abaid, Nicole: Passive Localization Inspired by Bats in Silent Flight	
<b>TS.FS01-1.06</b> Attendu, Jean-Michel: Time-domain NAH as a means to prevent exposition to harmful industrial impact noises	

TS.FS03-1	519a
<b>FS03 - Experimental Methods in Mechanics</b> <i>Chair: Wei-Chung Wang and Huimin Xie</i>	
<b>TS.FS03-1.01</b> (INVITED) Cobelli, Pablo: New developments in space- and time-resolved measurements of free-surface water waves	
<b>TS.FS03-1.02</b> Vetrano, Maria Rosaria: Experimental characterisation of $\text{In}_2$ sloshing by means of non-intrusive optical techniques	
<b>TS.FS03-1.03</b> (INVITED) Lu, Hua: Determination of Critical Loads for Embedded RF PA Assembly	
<b>TS.FS03-1.04</b> Csernák, Gábor: Evaluation of mechanical contact between metallic surfaces	
<b>TS.FS03-1.05</b> Hartmann, Stefan: Strain and strain-rate dermination using digital image correlation	
<b>TS.FS03-1.06</b> Ma, Shaopeng: Are commercial CCD/CMOS cameras trustable for photomechanics?	

TS.MS01-3 525ab	TS.MS04-3 517d	TS.MS05-3 516cde	TS.MS06-3 516b
<b>MS01 - Bypass Transition</b> <i>Chair: Dennice Gayme</i>	<b>MS04 - Nonlinear Dynamics of Engineering Systems – Nonlinear Phenomena in Mechanical and Structural Systems</b> <i>Chair: H. Yabuno &amp; A. Bajaj</i>	<b>MS05 - Soft Solid Active Matter</b> <i>Chair: Vikram Deshpande</i>	<b>MS06 - Topology Optimization – transient and stability problems</b> <i>Chair: Grégoire van Keulen</i>
<b>TS.MS01-3.01</b> Cossu, Carlo: Exact invariant solutions for coherent turbulent motions in Couette and Poiseuille flows	<b>TS.MS04-3.01</b> Ross, Shane: Escape from potential wells in multi-dimensional experimental systems	<b>TS.MS05-3.01</b> Govindjee, Sanjay: Microsphere modeling with full relaxation and internal evolutionary mechanisms	<b>TS.MS06-3.01</b> Van Keulen, Fred: Topology optimization for transient thermo-mechanical problems
<b>TS.MS01-3.02</b> Lu, Jianzhou: Spatio-temporal evolution of isolated turbulent bands in channel flows	<b>TS.MS04-3.02</b> Habib, Giuseppe: Passive linearization of nonlinear system resonances	<b>TS.MS05-3.02</b> Purohit, Prashant: Membrane Tension Controls Kinetics of Neuron Growth	<b>TS.MS06-3.02</b> Van Der Kolk, Max: Multi-material topology optimization of viscoelastically damped structures.
<b>TS.MS01-3.03</b> Klotz, Lukas: Transition to Turbulence in Plane Couette-Poiseuille Flow	<b>TS.MS04-3.03</b> Fidlin, Alexander: On the Strongly Nonlinear Resonance of a Rotor with a Self-balancing Device	<b>TS.MS05-3.03</b> Zhang, Yihui: Soft network materials with deterministic and bio-inspired designs	<b>TS.MS06-3.03</b> Blasques, José Pedro: Design of beam cross sections with extreme structural properties using topology optimization
<b>TS.MS01-3.04</b> Katonov, Mikhail: Origination of wave packets at localized streaks	<b>TS.MS04-3.04</b> Steindl, Alois: Nonlinear Oscillations of a Belt Drive	<b>TS.MS05-3.04</b> Hu, Yuhang: Dynamic indentation: A simple method to characterize poroelasticity of gels in micron scale	<b>TS.MS06-3.04</b> Pedersen, Niels: On bifurcation sensitivities and stability optimization based on local sub-domain eigenvalues
<b>TS.MS01-3.05</b> Hack, Philipp: Characterization and prediction of streak breakdown using machine learning	<b>TS.MS04-3.05</b> Abdel-Rahman, Eihab: Strange attractors observed in electrostatic MEMS actuators	<b>TS.MS05-3.05</b> Xu, Feng: Cell alignment fabrication using stretchable hydrogels with programmable strain gradients	<b>TS.MS06-3.05</b> Aage, Niels: Efficient transient topology optimization through dynamic substructuring
	<b>TS.MS04-3.06</b> Shitikova, Marina: Difference combinational internal resonance in nonlinear vibrations of thin plates	<b>TS.MS05-3.06</b> Li, Tiefeng: Mechanical instabilities and multi-functions of soft active structures in soft robots	<b>TS.MS06-3.06</b> Wallin, Mathias: Topology optimization for finite strain plasticity

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MONDAY, AUGUST 22 | LATE AFTERNOON

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TS.FM01-1	520abc	TS.FM02-2	520e	TS.FM06-2	524bc	TS.FM12-2	520f
<b>FM01 - Biological Fluid Mechanics</b> <i>Chair: Anne-Virginie Salsac</i>		<b>FM02 - Boundary Layers</b> <i>Chair: Karen Flack</i>		<b>FM06 - Drops, Bubbles and Multiphase Flows</b> <i>Chair: Jens Eggers</i>		<b>FM12 - Non-Newtonian and Complex Fluids</b> <i>Chair: Oliver Harlen</i>	
<b>TS.FM01-1.01 (INVITED)</b> Freund, Jonathan: The stability of flowing trains of confined red blood cells		<b>TS.FM02-2.01</b> Bretheim, Joel: A restricted nonlinear large-eddy simulation model for wall-bounded turbulence		<b>TS.FM06-2.01</b> Jian, Zhen: Coalescence Between Two Convex Liquid Surfaces		<b>TS.FM12-2.01 (INVITED)</b> Pinho, Fernando: Purely-elastic instabilities in cross-channel flows with periodic forcing	
<b>TS.FM01-1.02</b> Atwell, Scott: Microcirculation of red blood cells for two major genetic diseases		<b>TS.FM02-2.02</b> Rosenberg, Kevin: Data-driven optimization of forcing in the resolvent analysis of wall turbulence		<b>TS.FM06-2.02</b> Moffatt, Keith: Soap film dynamics under continuous deformation		<b>TS.FM12-2.02</b> Khomami, Bamin: Large-scale Brownian dynamics simulations of polymeric solutions	
<b>TS.FM01-1.03</b> Balogh, Peter: Flow of blood cells in complex geometry		<b>TS.FM02-2.03</b> Lee, Jin: Turbulent/non-turbulent Interface in Transitional and Turbulent Boundary Layers		<b>TS.FM06-2.03</b> Séon, Thomas: Size and velocity of jet drops following bursting bubbles		<b>TS.FM12-2.03</b> Yang, Mengfei: Rheology of Suspended Particles in Viscoelastic Fluids Under Shear	
<b>TS.FM01-1.04</b> Coupier, Gwennoù: Inversion of hematocrit partition at microfluidic bifurcations		<b>TS.FM02-2.04</b> Saxton-Fox, Theresa: Scale interactions and 3D critical layers in wall-bounded turbulent flows		<b>TS.FM06-2.04 (INVITED)</b> Qian, Tiezheng: Onsager's variational principle and the moving contact line problem		<b>TS.FM12-2.04</b> Gilbert, Peter: Molecular origins of higher harmonics in LAOS: Shear stress	
<b>TS.FM01-1.05</b> Graham, Michael: Theory of margination in blood and other multicomponent suspensions		<b>TS.FM02-2.05</b> Chini, Greg: Coupled uniform momentum zones and internal layers in turbulent wall flows		<b>TS.FM06-2.05</b> Burton, Justin: Measurements of Molecular Slip and Contact Line Motion Using a Quartz Crystal Microbalance		<b>TS.FM12-2.05</b> Mikami, Fumihiko: Mach cones in a viscoelastic fluid	
<b>TS.FM01-1.06</b> Qi, Qin: A coarse-grained theory to predict particle margination and migration in blood suspensions		<b>TS.FM02-2.06</b> Han, Guowen: Experimental investigation of space-time correlation in the atmospheric surface layer		<b>TS.FM06-2.06</b> Huerre, Axel: Micro-confined droplets: From lubrication film to droplet velocity		<b>TS.FM12-2.06</b> Giacomin, Alan: Elastomers in oscillatory extension	

TS.FM13-2	520d	TS.FM14-2	524a	TS.FM16-2	521abc	TS.SM04-2	516a
<b>FM13 - Computational Fluid Dynamics</b> <i>Chair: Paolo Luchini</i>		<b>FM14 - Turbulence</b> <i>Chair: Toshiyuki Gotoh</i>		<b>FM16 - Waves in Fluids</b> <i>Chair: Yaron Toledo</i>		<b>SM04 - Elasticity</b> <i>Chair: Pedro Ponte</i>	
<b>TS.FM13-2.01</b> (INVITED) Takagi, Shu: A full Eulerian method for fluid-structure interaction problems		<b>TS.FM14-2.01</b> Lalescu, Cristian: Characterizing multi-scale interaction in turbulence		<b>TS.FM16-2.01</b> Kadri, Usama: Evolution of Faraday waves by resonant triad interactions of surface-compression waves		<b>TS.SM04-2.01</b> (INVITED) Chen, Changqing: Elastic properties of origami-inspired reconfigurable metamaterials	
<b>TS.FM13-2.02</b> Ekiel-Jezewska, Maria: Migration of vesicles and flexible fibers in Poiseuille flow		<b>TS.FM14-2.02</b> He, Guosheng: Multi-resolution Analysis of the Turbulent Boundary Layer with Orthogonal Wavelet and Pod		<b>TS.FM16-2.02</b> Christodoulides, Paul: Ocean waves and microseisms		<b>TS.SM04-2.02</b> Desmorat, Boris: Application of the tensorial polar decomposition to 2D medium with open and closed cracks	
<b>TS.FM13-2.03</b> Van Hove, Sibylle: Apneic airway gas concentrations during nasal high flow therapy		<b>TS.FM14-2.03</b> Buxton, Oliver: Concurrent scale interactions in a turbulent shear flow		<b>TS.FM16-2.03</b> Rajchenbach, Jean: Faraday waves revisited		<b>TS.SM04-2.03</b> Nie, Guohua: Bi-stability of FGM Cylindrical Shells with Piezoelectric Surface Layers	
<b>TS.FM13-2.04</b> Zhao, Meng: An efficient adaptive rescaling scheme for computing Hele-Shaw problems		<b>TS.FM14-2.04</b> Matsumoto, Takeshi: Mean-flow reversals in a two-dimensional randomly forced flow in a square domain		<b>TS.FM16-2.04</b> Domino, Lucie: Faraday wave lattice as an elastic metamaterial		<b>TS.SM04-2.04</b> Chen, Shaohua: A new elastic theory for nanomaterials and its application	
<b>TS.FM13-2.05</b> Maîtrejean, Guillaume: Kinetic theory of colloidal suspensions migration		<b>TS.FM14-2.05</b> Toschi, Federico: Turbulence on a fractally decimated Fourier set		<b>TS.FM16-2.05</b> Funakoshi, Mitsuaki: Surface waves in a square container due to its resonant horizontal elliptic motion		<b>TS.SM04-2.05</b> Chen, Weiqiu: theory of nanoindentation for multiferroic materials	
<b>TS.FM13-2.06</b> Tan, Jennifer: Smart Morphing Blade for Vertical Axis Wind Turbines		<b>TS.FM14-2.06</b> Alves Portela, Felipe: Scale by scale energy budget in the near wake of a square cylinder		<b>TS.FM16-2.06</b> McTavish, James: Nonlinear Acoustics in Brass Instruments		<b>TS.SM04-2.06</b> Mauthe, Steffen: Minimization principles in poro-hydro-elasticity at fracture and their exploitation	

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MONDAY, AUGUST 22 | LATE AFTERNOON

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TS.SM05-2	519b	TS.SM06-2	518a	TS.SM07-2	515a	TS.SM09-2	518b
<b>SM05 - Fracture Mechanics</b> <i>Chair: Krishnaswamy Ravi-Chandar</i>		<b>SM06 - Geophysics and Geomechanics</b> <i>Chair: Yuri Fialko</i>		<b>SM07 - Impact Mechanics and Wave Propagation</b> <i>Chair: Vitali F. Nesterenko</i>		<b>SM09 - Phase and Chemical Transformations and Thermomechanical Phenomena</b> <i>Chair: Ryan Elliott</i>	
<b>TS.SM05-2.01</b> Larsen, Chris: Mathematical difficulties in cohesive fracture evolution		<b>TS.SM06-2.01 (INVITED)</b> Hatano, Takahiro: Rate and state friction law as derived from atomistic processes at asperities		<b>TS.SM07-2.01 (INVITED)</b> Morozov, Nikita: The Lavrentiev-Ishlinsky problem of transverse vibration of rods		<b>TS.SM09-2.01</b> Elliott, Ryan: Reversible temperature- and stress-induced martensitic transitions in crystals	
<b>TS.SM05-2.02</b> Landis, Chad: A phase-field model for fluid driven cracks in porous media		<b>TS.SM06-2.02</b> Perry, Stephen: Reproducing magnitude-invariant stress drops in fault models with thermal pressurization		<b>TS.SM07-2.02</b> Gambartotta, Luigi: Wave Propagation in Lattice Metamaterials with Viscoelastic Inertial Resonators		<b>TS.SM09-2.02</b> Biggs, Daniel: Periodic and propagating instabilities in superelastic NiTi wire twists	
<b>TS.SM05-2.03</b> Bobaru, Florin: Peridynamic modelling of dynamic fracture and fatigue cracking		<b>TS.SM06-2.03</b> Putelat, Thibaut: Nonlinear dynamics of frictional slip localization		<b>TS.SM07-2.03</b> Metrikine, Andrei: Transition radiation in continua excited by a moving load		<b>TS.SM09-2.03</b> Charkaluk, Eric: Full-field based thermomechanical determination of elastoplastic parameters in polycrystals	
<b>TS.SM05-2.04</b> Delaume, Eric: Local adaptive refinement method for the fracture of heterogeneous materials		<b>TS.SM06-2.04</b> Remij, Ernst: Hydraulic fracture propagation under the influence of natural fractures		<b>TS.SM07-2.04</b> Pal, Raj Kumar: Effect of large deformation pre-loads on linear wave propagation in hexagonal lattices		<b>TS.SM09-2.04</b> Xia, Minglu: Jump phenomena of thermomechanical responses for nonlinear vibration with NITI	
<b>TS.SM05-2.05</b> Jain, Shruti: Interface Strength Versus Fracture Energy Driven Fracture in Thin Film Transfer		<b>TS.SM06-2.05</b> Rivas, Endrina: Shear dilation using the extended finite element method		<b>TS.SM07-2.05</b> Wang, Xiaodong: Modelling and Simulation of Elastic Waves in Periodic Media Using Pseudo-Incident Wave Method		<b>TS.SM09-2.05</b> Le, Khanh Chau: Dislocation mechanism of microstructural changes in ductile single crystals	
<b>TS.SM05-2.06</b> Shen, Yongxing: Universal meshes for a crack with triple junctions		<b>TS.SM06-2.06</b> Rubino, Vito: Dynamic visualization of supershear ruptures		<b>TS.SM07-2.06</b> Seisson, Gabriel: POREQST extension to shock-release hysteresis of graphite			

TS.SM10-2	518c	TS.SM14-2	515bc	TS.FS01-2	522bc	TS.FS03-2	519a
<b>SM10 - Scales Effects in Materials</b> <i>Chair: Samuel Forest</i>		<b>SM14 - Stability of Structures</b> <i>Chair: Davide Bigoni</i>		<b>FS01 - Acoustics</b> <i>Chair: John Page</i>		<b>FS03 - Experimental Methods in Mechanics</b> <i>Chair: Philippe Petitjeans</i>	
<b>TS.SM10-2.01</b> Voyiadjis, George: Large scale atomistic simulation of size effects during nanoindentation		<b>TS.SM14-2.01 (INVITED)</b> Paidoussis, Michael P.: Dynamics of long tubular cantilevers in axial flow		<b>TS.FS01-2.01</b> Buchta, David: Mechanisms of jet crackle		<b>TS.FS03-2.01 (INVITED)</b> Volk, Romain: A shadow PTV technique for particle tracking in an inhomogeneous turbulent flow	
<b>TS.SM10-2.02</b> Lu, Guoxing: Investigation into the behaviour of the graded cellular foam under impact		<b>TS.SM14-2.02</b> Hamouche, Walid: Non-linear dynamic actuation of multistable shells		<b>TS.FS01-2.02</b> Fotsing, Edith Roland: Acoustic properties of porous PLA monoliths produced via nonsolvent induced phase separation		<b>TS.FS03-2.02</b> Kopp, Gregory A.: Evaluation of mean pressure field above a roof using PIV data and a 2D interpolation algorithm	
<b>TS.SM10-2.03</b> Piccolroaz, Andrea: Dispersion and localization in flexural waves supported by Rayleigh beam structures		<b>TS.SM14-2.03</b> Hoang, Tuan: Stability and buckling of a flat circular, intrinsically curved filament spanned by a fluid film		<b>TS.FS01-2.03</b> Gregory, Alastair: Modelling biological phenomena with rocket balloon buzz		<b>TS.FS03-2.03</b> Tripuraneni, Rajasekhar: Real-time measurement of biaxial modulus of GEnode for li-ion batteries	
<b>TS.SM10-2.04</b> Legarth, Brian: Plastic size-effects on a mode I loaded crack		<b>TS.SM14-2.04</b> Kochmann, Dennis: Transition waves in periodic multi-stable mechanical systems		<b>TS.FS01-2.04</b> Reichert, Peter: Acoustophoretic Handling of <i>C. elegans</i> in Microfluidic Channels		<b>TS.FS03-2.04</b> Trachsel, Mathis: Friction measurements on small journal bearings	
<b>TS.SM10-2.05</b> Martínez-Pañeda, Emilio: Strain gradient plasticity beyond micron-scale applications: Fracture and damage modelization		<b>TS.SM14-2.05</b> Lazarus, Arnaud: Modal analysis of structures in periodic states		<b>TS.FS01-2.05</b> Rodriguez-Lopez, Eduardo: Flow Field and Acoustic Study of the Flow in Various Wall-Mounted Porous Fences		<b>TS.FS03-2.05</b> Stepan, Gabor: Digital Effects in Hardware-in-the-Loop Experiments of Stick-Slip Phenomena	
<b>TS.SM10-2.06</b> Gerberich, William: Enhanced fracture toughness in silicon at small scale		<b>TS.SM14-2.06</b> Lestringant, Claire: Instabilities of a compressed hyper elastic prism: Competition between wrinkles and creases		<b>TS.FS01-2.06</b> Schmidt, Oliver: Global stability and resolvent analysis of sound emission in a high-Reynolds number turbulent jet		<b>TS.FS03-2.06</b> Wojnar, Charles: Measuring the dynamic electromechanical response of ferroelectrics	

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MONDAY, AUGUST 22 | LATE AFTERNOON



## Special Lectures and Presentations

08:30 – 09:20	09:20 – 10:10
<p><b>Sectional Lecture in Fluids</b>  <b>Chair:</b> <i>Laurent Mydlarski</i></p> <p><b>SL.FM-1</b> – Colonius, Tim: Models of coherent structures in turbulent jets and their radiated sound  <i>Room 520abc</i></p>	<p><b>Sectional Lecture in Fluids</b>  <b>Chair:</b> <i>Stavros Tavoularis</i></p> <p><b>SL.FM-3</b> – Jimenez, Javier: Coherent structures in wall-bounded turbulence  <i>Room 520abc</i></p>
<p><b>Sectional Lecture in Fluids</b>  <b>Chair:</b> <i>Bruno Eckhardt</i></p> <p><b>SL.FM-2</b> – Smits, Alexander: Turbulent drag reduction using liquid-infused surfaces  <i>Room 525ab</i></p>	<p><b>Sectional Lecture in Solids</b>  <b>Chair:</b> <i>Miles B Rubin</i></p> <p><b>SL.SM-2</b> – Hunter, Peter: Biomechanics and the physiome project  <i>Room 516cde</i></p>
<p><b>Sectional Lecture in Solids</b>  <b>Chair:</b> <i>Leslie Banks-Sills</i></p> <p><b>SL.SM-1</b> – Audoly, Basile: The non-linear mechanics of slender deformable bodies  <i>Room 517d</i></p>	<p><b>Sectional Lecture in Solids</b>  <b>Chair:</b> <i>Stelios Kyriakides</i></p> <p><b>SL.SM-3</b> – Fang, Daining: Deformation and Fracture of Electromagnetic Thin Films and Laminates under Multi-field Loading  <i>Room 517d</i></p>
<p><b>Sectional Lecture in Fluids-Solids</b>  <b>Chair:</b> <i>Peter Eberhard</i></p> <p><b>SL.FS-1</b> – Hu, Haiyan: Soft machines: challenges to computational dynamics  <i>Room 516cde</i></p>	<p><b>Sectional Lecture in Fluids-Solids</b>  <b>Chair:</b> <i>Bernhard Schrefler</i></p> <p><b>SL.FS-2</b> – Farhat, Charbel: Computational framework for multi-material FSI, shocks, turbulence and fracture  <i>Room 525ab</i></p>

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TS.MS04-4	517d	TS.MS05-4	516cde	TS.MS06-4	516b	TS.FM01-2	520abc
<b>MS04 - Nonlinear Dynamics of Engineering Systems – Systems with Time Delay and Non-Smooth Systems</b> <i>Chair: F. Pfeiffer &amp; O. Gendelman</i>		<b>MS05 - Soft Solid Active Matter</b> <i>Chair: Xuanhe Zhao</i>		<b>MS06 - Topology Optimization – Formulations and emerging problems</b> <i>Chair: D. Tortorelli &amp; J. Guest</i>		<b>FM01 - Biological Fluid Mechanics</b> <i>Chair: Jonathan Freund</i>	
<b>TS.MS04-4.01</b> Rand, Richard: On Nonlinear Differential Equations with Delayed Self-Feedback		<b>TS.MS05-4.01</b> Huang, Rui: Ion-induced swelling and volume phase transition of polyelectrolyte gels		<b>TS.MS06-4.01</b> Fernandez-Perez, Miguel: Structural topology optimization of wind turbine blades fabricated by additive manufacturing		<b>TS.FM01-2.01</b> Niazi, Erfan: Development of an Experimental Correlation for Red Blood Cells Aggregation Rate	
<b>TS.MS04-4.02</b> Radons, Günter: Analysis of systems with state-dependent delays and applications in metal cutting		<b>TS.MS05-4.02</b> Chester, Shawn: Combined Modeling and Experiments Polymeric Gels		<b>TS.MS06-4.02</b> Noël, Lise: Structural design under damage constraints with XFEM and level sets.		<b>TS.FM01-2.02</b> Wang, Zhen: Motion of a spherical capsule in branched tube flow with finite inertia	
<b>TS.MS04-4.03</b> Molnar, Tamas: Higher-order estimation of limit cycle amplitude in metal cutting		<b>TS.MS05-4.03</b> Nardinocchi, Paola: On the effects of cavitation in hydrogel-based structures		<b>TS.MS06-4.03</b> Vié, Jean-Léopold: A second-order method for structural shape optimization with the level-set method		<b>TS.FM01-2.03</b> Salsac, Anne-Virginie: Motion of an oblate capsule in simple shear flow	
<b>TS.MS04-4.04</b> Wang, Zaihua: Delay effect on motion control of a two-wheeled inverted pendulum		<b>TS.MS05-4.04</b> Duda, Fernando: On pressure-driven flow through a gel-filled channel		<b>TS.MS06-4.04</b> Wadbro, Eddie: On nonlinear filters in topology optimization		<b>TS.FM01-2.04</b> Vejdani, Hamid: The dynamical reasons for maneuverability of bats	
<b>TS.MS04-4.05</b> Cao, Qingjie: Dynamical Behaviours of an Archetypal Self-excited SD Oscillator		<b>TS.MS05-4.05</b> Brun, Pierre-Thomas: Elastocapillary swelling: When coalesced structures curl apart		<b>TS.MS06-4.05</b> Rojas Labanda, Susana: On slowly moving boundaries in density based structural topology optimization		<b>TS.FM01-2.05</b> Kolomenskiy, Dmitry: Dynamics of bumblebees flying in a vortex street	
<b>TS.MS04-4.06</b> Wiercigroch, Marian: Analysis of forward and backward whirls in drilling		<b>TS.MS05-4.06</b> Feng, Xiangchao: Highly stretchable double-network composite		<b>TS.MS06-4.06</b> Qian, Xiaoping: Topology Optimization for Additive Manufacturing: Considering Support Structures		<b>TS.FM01-2.06</b> Darakananda, Darwin: Minimally low order vortex modeling of bio-inspired locomotory flows	

TS.FM02-3 520e	TS.FM06-3 524bc	TS.FM07-1 525ab	TS.FM12-3 520f
<b>FM02 - Boundary Layers</b> <i>Chair: Yvan Maciel</i>	<b>FM06 - Drops, Bubbles and Multiphase Flows</b> <i>Chair: John Lister</i>	<b>FM07 - Flow Instability and Transition</b> <i>Chair: Carlo Cossu</i>	<b>FM12 - Non-Newtonian and Complex Fluids</b> <i>Chair: Gareth McKinley</i>
<b>TS.FM02-3.01 (INVITED)</b> Flack, Karen: Prediction of frictional drag in the transitionally rough regime	<b>TS.FM06-3.01</b> Das, Debasish: Dynamics of leaky dielectric drops in strong electric fields: Boundary element simulations	<b>TS.FM07-1.01 (INVITED)</b> Tuckerman, Laurette: Can frequencies be predicted from mean flows? RZIF for thermosolutal convection	<b>TS.FM12-3.01</b> Frigaard, Ian: Creeping flow around particles in large yield stress Bingham fluids
<b>TS.FM02-3.02</b> Pathikonda, Gokul: Inner-Outer Interactions in a Turbulent Boundary Layer Overlying Complex Roughness	<b>TS.FM06-3.02</b> Xiang, Yaolei: Wetting transition of submerged structures under hydrostatic and flow conditions	<b>TS.FM07-1.02</b> Sipp, Denis: Mathematical foundations for mean flow stability analysis	<b>TS.FM12-3.02</b> Amiri, Amin: Displacement flows of viscoplastic fluids in an oscillating pipe
<b>TS.FM02-3.03</b> Klaas, Michael: Frequency dependence of drag reduction in a wavy surface turbulent boundary layer	<b>TS.FM06-3.03 (INVITED)</b> Cantat, Isabelle: Velocity measurements in draining foam films	<b>TS.FM07-1.03</b> Kambe, Tsutomu: New Scenario of Turbulence Theory and Wall Turbulence	<b>TS.FM12-3.03</b> Jeon, Jaewoo: Displacing yield stress fluid by Newtonian fluid in a vertical circular channel
<b>TS.FM02-3.04</b> Maciel, Yvan: Sweeps and ejections in ZPG and strong APG turbulent boundary layers	<b>TS.FM06-3.04</b> Lohse, Detlef: Role of natural convection in the dissolution of sessile droplets	<b>TS.FM07-1.04</b> Tao, Jianjun: Helical-wave instabilities of an annulus flow in a helical magnetic field	<b>TS.FM12-3.04</b> Roustaei, Ali: Darcy's law and critical pressure drops for yield stress fracture flows
<b>TS.FM02-3.05</b> Örlü, Ramis: History effects in adverse pressure gradient turbulent boundary layers	<b>TS.FM06-3.05</b> Pandey, Anupam: Elasto-capillary interaction of liquid drops	<b>TS.FM07-1.05</b> Henningson, Dan S: Bypass transition in boundary layers	<b>TS.FM12-3.05</b> Jalaal, Maziyar: Slip and no-slip of carbopol droplets: A direct experimental observation
<b>TS.FM02-3.06</b> Le Floch, Arnaud: Effect of boundary-layer superstructures on separation bubble unsteadiness	<b>TS.FM06-3.06</b> Steen, Paul: Freezing vortex rings into shaped particles		<b>TS.FM12-3.06</b> Karimfazli, Ida: Pulsing thermal plumes in yield stress fluids

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	TS.FM13-3 520d	TS.FM14-3 524a	TS.FM16-3 521abc	TS.SM04-3 516a
	<b>FM13 - Computational Fluid Dynamics</b> <i>Chair: Paolo Luchini</i>	<b>FM14 - Turbulence</b> <i>Chair: Laurent Mydlarski</i>	<b>FM16 - Waves in Fluids</b> <i>Chair: Didier Clamond</i>	<b>SM04 - Elasticity</b> <i>Chair: Changqing Chen</i>
10:30-10:50	<b>TS.FM13-3.01</b> Shen, Yiqing: High Order Global Smoothness Indicator for Improving the Fifth-order Weno-z Scheme	<b>TS.FM14-3.01 (INVITED)</b> Irvine, William: Conservation and flow of helicity across scales in reconnecting vortex knots and links	<b>TS.FM16-3.01 (INVITED)</b> Arduhin, Fabrice: Observing and understanding short gravity waves	<b>TS.SM04-3.01 (INVITED)</b> Miehe, Christian: Variational phase field models for ductile fracture at finite strain
10:50-11:10	<b>TS.FM13-3.02</b> Ringue, Nicolas: Optimization-based anisotropic mesh-polynomial adaptation for high-order methods	<b>TS.FM14-3.02</b> Sahoo, Ganapati: Effects of helicity on the energy transfer in three-dimensional turbulence	<b>TS.FM16-3.02 (INVITED)</b> Shrira, Victor: Spectral evolution of random wave fields: Kinetic equations vs. direct numerical simulations	<b>TS.SM04-3.02</b> Berdichevsky, Victor: The variational principle for probabilistic measure, Hashin-Shtrikman bounds and beyond
11:10-11:30	<b>TS.FM13-3.03</b> Modesti, Davide: Efficient Algorithm for DNS of Compressible Turbulent Wall-Bounded Flows	<b>TS.FM14-3.03</b> Obligado, Martin: Interaction of two high Reynolds number axisymmetric turbulent wakes	<b>TS.FM16-3.03</b> Veron, Fabrice: Laboratory measurements of the inception and evolution of centimeter-scale Langmuir turbulence	<b>TS.SM04-3.03</b> Buryachenko, Valeriy: Random structure composites with nonlocal thermoelastic properties of constituents
11:30-11:50	<b>TS.FM13-3.04</b> Sakib, Md Nazmus: Spectrally-accurate immersed boundary conditions method for 3-D Navier-Stokes equations	<b>TS.FM14-3.04 (INVITED)</b> Yeung, Pui-Kuen (P.K): Extreme Events and Acceleration Statistics at High Reynolds Number	<b>TS.FM16-3.04</b> Clamond, Didier: Dispersion-improved fully nonlinear shallow water model	<b>TS.SM04-3.04</b> Rudykh, Stephan: Micromechanics of magneto- and electro-active soft composites
11:50-12:10	<b>TS.FM13-3.05</b> Lv, Jun-Ming: Numerical study on radiative heat for hyper-velocity re-entry probes	<b>TS.FM14-3.05</b> Le Gal, Patrice: Rotating turbulence in a rotor/stator cavity at high Reynolds number	<b>TS.FM16-3.05</b> Malecha, Ziemowit: Baroclinically-driven acoustic streaming	<b>TS.SM04-3.05</b> Podolskaya, Ekaterina: Elastic fields and effective properties of triangular lattice with vacancies
12:10-12:30	<b>TS.FM13-3.06</b> Gelfgat, Alexander: On acceleration of Krylov-subspace Newton and Arnoldi iterations for incompressible CFD	<b>TS.FM14-3.06</b> Osawa, Kosuke: Flow structure and torque transition process of turbulent Taylor-Couette flow	<b>TS.FM16-3.06</b> Albrecht, Thomas: Components of mean streaming flow in a precessing cylinder at small nutation angles	<b>TS.SM04-3.06</b> Bleiler, Christian: A novel microstructurally-based material model to describe passive skeletal muscle tissue

TS.SM05-3 519b	TS.SM06-3 518a	TS.SM07-3 515a	TS.SM09-3 518b
<b>SM05 - Fracture Mechanics</b> <i>Chair: Laurent Ponson</i>	<b>SM06 - Geophysics and Geomechanics</b> <i>Chair: Takahiro Hatano</i>	<b>SM07 - Impact Mechanics and Wave Propagation</b> <i>Chair: Nikita Morozov</i>	<b>SM09 - Phase and Chemical Transformations and Thermo-mechanical Phenomena</b> <i>Chair: Stewart Silling</i>
<b>TS.SM05-3.01</b> Antipov, Yuri: Crack growth at nonuniform speed beneath the boundary of a half-plane	<b>TS.SM06-3.01 (INVITED)</b> Rice, James: Thermo-hydro-mechanical processes stabilizing antarctic ice stream margins	<b>TS.SM07-3.01 (INVITED)</b> Nesterenko, Vitali F.: Strongly nonlinear waves generated by impact in weakly and strongly dissipative sonic vacuum	<b>TS.SM09-3.01 (INVITED)</b> Levitas, Valery: Phase field approach to phase transformations, twinning, dislocations, and their interaction
<b>TS.SM05-3.02</b> Unger, David: Linear elastic solutions for slotted plates revisited	<b>TS.SM06-3.02</b> Shigeno, Naoyuki: Dynamic impact-induced fracture development in ice spheres	<b>TS.SM07-3.02</b> Salupere, Andrus: Solitons and soliton structures: What is visible and what is hidden	<b>TS.SM09-3.02</b> Silling, Stewart: The thermodynamic form of peridynamics with application to phase transformations
<b>TS.SM05-3.03</b> Coré, Arthur: Experimental and numerical investigation of hollow spheres subjected to fracture	<b>TS.SM06-3.03</b> Svetlizky, Ilya: Shear stress peak radiated ahead of rapidly accelerating frictional rupture	<b>TS.SM07-3.03</b> Samsonov, Alexander: Bulk Strain Solitons in Lengthy Solids: From Phenomenon to a Work Tool	<b>TS.SM09-3.03</b> Ahluwalia, Rajeev: Phase field modeling of martensitic transformations in nanocrystalline materials
<b>TS.SM05-3.04</b> Walton, Jay: Plane Strain Fracture with Surface Mechanics: Non-Local Boundary Regularization	<b>TS.SM06-3.04</b> Touhei, Terumi: Near-field Equation for Quantitative Evaluation of Fluctuations	<b>TS.SM07-3.04</b> Chen, Zhen: Staggered MD and MPM for Multiscale Simulation of Impact Responses	<b>TS.SM09-3.04</b> Jiang, Dongjie: Modelling of axial buckling and recovery of pseudoelastic NiTi tubes
<b>TS.SM05-3.05</b> Roman, Benoit: Intertwined spiraling crack path in perforated sheets	<b>TS.SM06-3.05</b> Vilotte, Jean-Pierre: Rupture dynamics along bimaterial interfaces	<b>TS.SM07-3.05</b> Wang, Lifeng: Harnessing structural hierarchy to design lightweight phononic crystals	<b>TS.SM09-3.05</b> Song, Zilong: An analytical model for phase transitions of an SMA wire under uniaxial tension
<b>TS.SM05-3.06</b> Curtin, William: Crack tip blunting and cleavage under dynamic conditions	<b>TS.SM06-3.06</b> York, Jason: On the effects of plasticity in hydraulic fractures	<b>TS.SM07-3.06</b> Van Gemmeren, Valentin: Energy focusing using the dispersion of flexural waves	<b>TS.SM09-3.06</b> Wheeler, Robert: Actuator lifetime predictions for Ni60Ti40 shape memory alloy plate actuators

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TS.SM10-3	518c
<b>SM10 - Sizescale Effects in Materials</b> <i>Chair: Marc Geers</i>	
<b>TS.SM10-3.01</b> (INVITED) Massart, Thierry J.: Ultra-High Ductility of TRIP-Assisted Seels Modelled by Gradient Plasticity	
<b>TS.SM10-3.02</b> Asgharzadeh, Mohammadali: Continuum analysis of precipitation hardening using SGP theory	
<b>TS.SM10-3.03</b> Stupkiewicz, Stanislaw: Phase-field study of size effects in martensitic microstructures	
<b>TS.SM10-3.04</b> Niordson, Christian: Finite strain gradient plasticity with application to micron scale void growth	
<b>TS.SM10-3.05</b> Ling, Chao: Modelling size effects on void growth and coalescence in single crystals	
<b>TS.SM10-3.06</b> Nielsen, Kim Lau: Size Effects in Void Coalescence	

TS.SM14-3	515bc
<b>SM14 - Stability of Structures</b> <i>Chair: Suresh Shrivastava</i>	
<b>TS.SM14-3.01</b> Shrivastava, Suresh: Plastic bifurcation paradox for circular and rectangular plates	
<b>TS.SM14-3.02</b> Martin, Maverick: Tape spring rod model as a regularised Ericksen's bar involving propagating instabilities	
<b>TS.SM14-3.03</b> Mora, Serge: Gravity driven instability in horizontal elastic layers	
<b>TS.SM14-3.04</b> Plucinsky, Paul: Interplay of wrinkling and microstructure in nematic elastomer membranes	
<b>TS.SM14-3.05</b> Psarra, Erato: Instability of MRE film - substrate block under magneto - mechanical loadings	
<b>TS.SM14-3.06</b> Qu, Shaoxing: Wrinkling behavior of an inflated dielectric elastomer balloon	

TS.FS01-3	522bc
<b>FS01 - Acoustics</b> <i>Chair: Luc Mongeau</i>	
<b>TS.FS01-3.01</b> Lamprecht, Andreas: 3D characterization of acoustofluidic force fields in the fN range	
<b>TS.FS01-3.02</b> Bailly, Christophe: Experimental investigation and modelling of the boundary-layer wall pressure spectrum	
<b>TS.FS01-3.03</b> (INVITED) Noiray, Nicolas: Stochastic aspects of thermoacoustic instabilities in combustion chambers	
<b>TS.FS01-3.04</b> Illingworth, Simon: Robust feedback control of thermoacoustic oscillations	
<b>TS.FS01-3.05</b> Juniper, Matthew: Combined experimental and adjoint-based sensitivity analysis in thermoacoustics	
<b>TS.FS01-3.06</b> Bennowitz, John: Periodic Partial Extinction in Acoustically Coupled Fuel Droplet Combustion	

TS.FS03-3	519a
<b>FS03 - Experimental Methods in Mechanics</b> <i>Chair: Yilan Kang</i>	
<b>TS.FS03-3.01</b> (INVITED) Xie, Huimin: Micro-speckle/grating by FIB deposition and their application to deformation measurement	
<b>TS.FS03-3.02</b> (INVITED) Wang, Wei-Chung: A modulo pi temporal phase unwrapping theory in photoelasticity	
<b>TS.FS03-3.03</b> Xu, Chaochen: An experimental investigation on interfacial properties of graphene: Size effect	
<b>TS.FS03-3.04</b> Qiu, Wei: Residual stress analysis in si-based multi-layer heterostructure by micro-raman	
<b>TS.FS03-3.05</b> Wu, Shangquan: Cell viability and rapid screening anti-cancer drug based on nanomechanical fluctuation	
<b>TS.FS03-3.06</b> Pakrashi, Vikram: Scaled Experiments on Tuned Liquid Column Damper-Wind Turbine-Soil Interaction	

**Short talks with Posters**

Talks begin at 13:30 in the rooms listed below, followed by joint poster session at 15:30 in room 220c. The poster board numbers are the last three digits in the paper code, i.e. PO.SM07-1.01.1

**MS03 - Multiphase Flow in the Processing Industry**  
 (co-located with FS03 and FS10)

**Room:** 519a

**PO.MS03-1.01.1** | [Sassi, Mohamed](#): Experimental Study of Flow Regimes and Empirical Correlations of the Pressure Drop in a Trickle Bed Reactor

**MS04 - Nonlinear Dynamics of Engineering Systems**

**Room:** 517d

**PO.MS04-1.01.3** | [Abdel-Rahman, Eihab](#): Strange attractors observed in electrostatic MEMS actuators – PROMOTED TO ORAL

**PO.MS04-1.02.4** | [Ario, Ichiro](#): Analysis of Symmetry-breaking and Multi-Bifurcation for Multi-folding Structures

**PO.MS04-1.03.5** | [Biswas, Saurabh](#): A New Versatile Two-State Five-Parameter Hysteresis Model

**PO.MS04-1.04.6** | [Ding, Jieyu](#): Harmonic differential quadrature method for nonlinear vibrations of transmission belts

**PO.MS04-1.05.7** | [Ding, Qian](#): Non-linear dynamics analysis of a steering gear system with backlashes

**PO.MS04-1.06.8** | [Drozdetzkaya, Olga](#): Nonlinear Dynamics of Gearboxes with Flexible Friction Clutch

**PO.MS04-1.07.9** | [Hedrih, Katica \(Stevanovic\)](#): Vibro-impact dynamics in systems with trigger of coupled three singular points

**PO.MS04-1.08.10** | [Jiang, Jun](#): Switching sensitive and insensitive responses in a piecewise smooth rubbing rotor system

**PO.MS04-1.09.11** | [Jiang, Shanying](#): Mixed-mode oscillations in a slow-fast flexible joint system with time delay

**PO.MS04-1.10.12** | [Lamarque, Claude Henri](#): Symmetry-breaking in a three-nanomechanical-resonator array for mass detection – PROMOTED TO ORAL

**PO.MS04-1.11.13** | [Liu, Liu](#): Dynamic Response of Acoustically Excited Plates Resting on Elastic Foundations

**PO.MS04-1.12.14** | [Naik, Shibabrat](#): Partial control and avoidance of escape from a potential well

**PO.MS04-1.13.15** | [Perchikov, Nathan](#): Symmetry-induced dynamic localization in lattice structures

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POSTERS

**PO.MS04-1.14.16** | [Roy, Subhradeep](#): Data-based Method for Extracting Navigational Leadership Between Two Bats

**PO.MS04-1.15.17** | [Singh, Harkirat](#): Modelling non-planar vibrations of a string in the presence of doubly curved obstacle

**PO.MS04-1.16.18** | [Stefanski, Andrzej](#): Synchronization of self-induced friction oscillators – PROMOTED TO ORAL

**PO.MS04-1.17.19** | [Warminska, Anna](#): Nonlinear Vibrations of a Circular Plate Induced by Mechanical and Thermal Loadings

**PO.MS04-1.18.20** | [Xia, Shuyan](#): stationary control of floating airport in waves

**PO.MS04-1.19.21** | [Yan, Yao](#): Self-interrupted chatter in cylindrical grinding

**PO.MS04-1.20.22** | [Yokoi, Yuichi](#): A study on variable for estimating maximum power conversion of parametric pendulums

**PO.MS04-1.21.23** | [Yousefzadeh, Behrooz](#): Nonlinear Wave Transmission in Disordered Periodic Structures

**PO.MS04-1.22.24** | [Zeidis, Iqor](#): On the locomotion of self-propelling systems in a linear resistive environment

**PO.MS04-1.23.25** | [Zhang, Shu](#): Mode localization in cyclic self-excited structure with symmetric delayed feedback

### MS05 - Soft Solid Active Matter (co-located with SM01)

Room: 516cde

**PO.MS05-1.01.27** | [Cai, Shengqiang](#): Active motion and deformation of liquid crystal elastomers

**PO.MS05-1.02.28** | [Jiang, Liying](#): Optimizing the energy harvesting performance of viscoelastic dielectric elastomer generators

**PO.MS05-1.03.29** | [Li, Ying](#): Multiscale constitutive modeling on finite strain viscoelasticity of elastomers

**PO.MS05-1.04.30** | [Liu, Liwu](#): Thermodynamics and instability of dielectric elastomers

**PO.MS05-1.05.31** | [Liu, Zishun](#): A New Viscoelastic Constitutive Model of Shape Memory Polymers

**PO.MS05-1.06.32** | [Manav, Manav](#): Mechanics of thermoresponsive polymer brush based soft materials: theory and experiments

**PO.MS05-1.07.33** | [Mandre, Shreyas](#): Curvature of the transverse arch governs stiffness of the human foot

**PO.MS05-1.08.34** | [Wang, Pengfei](#): Coupling kinetics of reactively ionic gels

**PO.MS05-1.09.35** | [Yang, Xuxu](#): Mechanical instability build in hydrogel structure achieving fast actuation

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**PO.MS05-1.10.36** | [Zhang, Teng](#): Tough Adhesion of Hydrogels

**PO.MS05-1.11.37** | [Zhang, Yanhang](#): Contributions of ECM Constituents to Arterial Wall Mechanics

### MS06 - Topology Optimization

**Room:** 516b

**PO.MS06-1.01.39** | [Bauduin, Simon](#): Overhanging constraints in additive manufacturing using three different tools

**PO.MS06-1.02.40** | [Chedrik, Vasily](#): Topology/sizing optimization of aircraft structural components

**PO.MS06-1.03.41** | [Collet, Maxime](#): Design of homogenized microstructures using stress-based topology optimization

**PO.MS06-1.04.42** | [Gao, Jie](#): A novel topology optimization method for periodical cellular materials

**PO.MS06-1.05.43** | [Lambe, Andrew](#): Topology optimization using Bernstein basis polynomials

**PO.MS06-1.06.44** | [Li, Chih-Hung](#): Strength-based evolutionary structural optimization

**PO.MS06-1.07.45** | [Myliński, Andrzej](#): Topology optimization of contact problems using Cahn-Hilliard regularization

**PO.MS06-1.08.46** | [Niu, Bin](#): On objective functions in topology optimization for vibration and wave propagation problems

**PO.MS06-1.09.47** | [Paquette-Rufiange, Antonin](#): Adaptive design process of lattices produced by additive manufacturing

**PO.MS06-1.11.49** | [Wang, Bo](#): Multiple Designs Approach for Continuum Topology Optimization

**PO.MS06-1.12.50** | [Wang, Yingjun](#): Lattice hip implant design by multi-scale multi-constraint topology optimization

**PO.MS06-1.13.51** | [Yamada, Takayuki](#): Estimates of Upper and Lower Bounds of Dispersive Effect in the Homogenized Wave Equation

**PO.MS06-1.14.52** | [Yan, Jun](#): Global multiscale optimization design of composite laminated frame structure

### FM01 - Biological Fluid Mechanics

**Room:** 520abc

**PO.FM01-1.01.54** | [DeGroot, Christopher](#): Development of a porous media model for flow in alveolated ducts within the human lung

**PO.FM01-1.02.55** | [Ghigo, Arthur R.](#): A 2D multiring simulation of blood flow in arteries

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POSTERS

**PO.FM01-1.03.56** | [Goto, Tomonobu](#): A Discrete Biased Random Walk Model Based on Bacterial Chemotaxis

**PO.FM01-1.04.57** | [Hu, Wen](#): Hydrodynamics of tadpole swimming in the wake of a cylinder

**PO.FM01-1.05.58** | [Iima, Makoto](#): Hierarchical structure of spatially localized bioconvection of photosensitive microorganism

**PO.FM01-1.06.59** | [Prah Wittberg, Lisa](#): Flow and blood clot detection in the ECMO system

**PO.FM01-1.07.60** | [Qian, Qin](#): Drug Transport in Anterior Human Eye after Subconjunctival and Episcleral Implants

**PO.FM01-1.08.61** | [Rival, David](#): The influence of hematocrit on the decaying shear turbulence of blood flow in large arteries

**PO.FM01-1.09.62** | [Staples, Anne](#): A model for tracheolar flow in insects

**PO.FM01-1.10.63** | [Wu, Wei-Tao](#): Numerical simulation of thrombosis in a blood vessel

**PO.FM01-1.11.64** | [Yeh, Han Hung](#): FSI analysis of artificial heart valves using Newtonian and non-Newtonian models

**PO.FM01-1.12.65** | [Zayko, Julia](#): Effect of the flow regime on flutter in collapsible tubes

## FM02 - Boundary Layers

Room: 520e

**PO.FM02-1.01.67** | [Azanov, Georgii](#): The Efficiency of One Method of Machineless Energy Stratification in a Gas Flow

**PO.FM02-1.02.68** | [Bernots, Tomass](#): Boundary layer receptivity to acoustic noise in transonic flows

**PO.FM02-1.03.69** | [Chamorro, Leonardo](#): On the turbulence dynamics over geophysical-scale topography

**PO.FM02-1.04.70** | [Chimetta, Henrique](#): Experiments on a closed-conduit flow perturbed by a two-dimensional hill of low aspect ratio

**PO.FM02-1.05.71** | [Couliou, Marie](#): Experimental study of interactions between turbulent structures and poro-elastic surfaces

**PO.FM02-1.06.72** | [Cui, Kai](#): Study of shock wave/boundary layer interactions on high-pressure capturing wings

**PO.FM02-1.07.73** | [Dong, Ming](#): Effects of local suction on boundary-layer instability and acoustic radiation

**PO.FM02-1.08.74** | [Fang, Yihong](#): Analysis of mach radiation in an axisymmetric supersonic jet

**PO.FM02-1.09.75** | [Han, Yufeng](#): Non-parallel effects on mode characteristics in hypersonic boundary layers

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**PO.FM02-1.10.76** | [Hutchinson, Ashleigh](#): A new model for the two-fluid laminar classical wake

**PO.FM02-1.11.77** | [Jing, Zhenrong](#): Effect of crossflow vortex on TS wave in a Falkner-Skan-Cooke boundary layer

**PO.FM02-1.12.78** | [Liu, Jianxin](#): Multiple families of solutions of secondary instabilities in hypersonic flows

**PO.FM02-1.13.79** | [Su, Caihong](#): Tentative explanation of the mechanism of noise reduction for trailing edge with chevron

**PO.FM02-1.14.80** | [Xu, Hui](#): Effect of a 3D surface indentation on boundary layer stability

**PO.FM02-1.15.81** | [Zhang, Chi](#): Reynolds-number universality of quasi-steady quasi-homogeneous theory

**PO.FM02-1.16.82** | [Zhang, Cunbo](#): Nonlinear interaction of the first mode with the second mode

#### FM03 - Combustion and Flames (co-located with FM13)

**Room:** 520d

**PO.FM03-1.01.84** | [Al Sarraf, Elias](#): Premixed flame instability in a Hele-Shaw burner

**PO.FM03-1.02.85** | [Almarcha, Christophe](#): Modelisation and Forecast of Premixed Flames

**PO.FM03-1.03.86** | [Grek, Genrich](#): Visualization of conventional and combusting subsonic jet instabilities

**PO.FM03-1.04.87** | [Lau-Chapdelaine, She-Ming](#): Stability characteristics of pulsating one-dimensional detonations using a simple analogue

**PO.FM03-1.05.88** | [Lutsenko, Nickolay](#): On Numerical Modeling of Combustion and Other Energy Release in Porous Objects

**PO.FM03-1.06.89** | [Merk, Malte](#): On hydrodynamic effects during self-excited thermoacoustic oscillations

#### FM06 - Drops, Bubbles and Multiphase Flows

**Room:** 524bc

**PO.FM06-1.07.91** | [Attarzadeh, Reza](#): A numerical study of the effect of roughness topology on surface hydrophobicity

**PO.FM06-1.08.92** | [Ayati, Anis](#): Wave induced fluctuations in the gas-phase of a stratified air/water pipe flow

**PO.FM06-1.09.93** | [Brownell, Cody](#): Laser heating and evaporation of a levitated water drop

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**PO.FM06-1.10.94** | [Das, Soumik](#): Electrostatic suppression of the Leidenfrost state

**PO.FM06-1.11.95** | [Favelukis, Moshe](#): Mass transfer with slender drops in shear and extensional flows

**PO.FM06-1.12.96** | [Gong, Zhaoxin](#): Effects of atmospheric pressure on water entry of hydrophobic spheres

**PO.FM06-1.13.97** | [Gubaidullin, Damir](#): Influence of Oscillations on Coagulation and Sedimentation of Aerosols in Tubes

**PO.FM06-1.14.98** | [Hamouda, Ouajih](#): Transient fluid phenomena during a rapid two-phase depressurisation

**PO.FM06-1.15.99** | [Huang, Kuan-Ling](#): Rotational separation in binary droplet collision

**PO.FM06-1.16.100** | [Imani, Ramin](#): Quantitative Measurement of Acoustic Separation of Submicron Solid Aerosols

**PO.FM06-1.17.101** | [Jackson, Samuel](#): The effect of inhomogeneous mobility on immiscible Hele-Shaw flow

**PO.FM06-1.18.102** | [Kindelan, Ultano](#): Stability and equilibrium of charged rotating drops

**PO.FM06-1.19.103** | [Kiyama, Akihito](#): Effects of a water hammer and cavitation on the motion of a gas-liquid interface

**PO.FM06-1.20.104** | [Koga, Kazuki](#): Oscillation and pinch-off of axisymmetric droplets

**PO.FM06-1.21.105** | [Kong, Tiantian](#): The coiling and whipping instability of an electrically charged liquid jet

**PO.FM06-1.22.106** | [Lavrenteva, Olga](#): Dynamic deformation of toroidal drops in compressional Stokes flow

**PO.FM06-1.23.107** | [Le Bars, Michael](#): Fragmentation and exchanges during planetary core formation

**PO.FM06-1.24.108** | [Li, Jiang](#): Lubrication and adhesion of bubbles/droplets in microchannels

**PO.FM06-1.25.109** | [Liu, Yunqiao](#): Translation of two encapsulated bubbles in an ultrasound field

**PO.FM06-1.26.110** | [Loureiro, Juliana](#): Experimental Investigation of Slug Flow in a Pipe Subjected to Fluid Injection at the Wall

**PO.FM06-1.27.111** | [Mak, Sze Yi](#): Rapid generation of small water-water droplets at the interface of a jet flowing at high speed

**PO.FM06-1.28.112** | [Pan, Shucheng](#): Multiscale simulation of soap bubbles rupture

**PO.FM06-1.29.113** | [Rodriguez, Mauro](#): Non-spherical bubble collapse dynamics in viscoelastic media

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**PO.FM06-1.30.114** | [Sawaguchi, Erina](#): Pressure distribution on a levitating drop over a moving surface

**PO.FM06-1.31.115** | [Sempregon, Ciro](#): Mesoscale modelling of multiphase flow in contact with elastic surfaces

### FM07 - Flow Instability and Transition

**Room:** 525ab

**PO.FM07-1.01.117** | [Abe, Yoshiaki](#): Flow instability on airfoil separation control at optimum actuation frequency

**PO.FM07-1.02.118** | [Adachi, Shizuko](#): Lagrangian analysis of energy conversion in the taconis oscillations

**PO.FM07-1.03.119** | [Alves, Leonardo](#): Locating saddle points in differential dispersion relations WITHDRAWN

**PO.FM07-1.04.120** | [Amiroudine, Sakir](#): A Lagrange-euler Modelling of Thermovibrational Instabilities in Supercritical Fluids

**PO.FM07-1.05.121** | [Bhowmick, Aklant](#): Effect of pressure fluctuations on Richtmyer Meshkov coherent structure

**PO.FM07-1.06.122** | [Chopra, Gaurav](#): Intermittency of laminar separation bubble during drag crisis in flow past a circular cylinder

**PO.FM07-1.07.123** | [Dong, Shuai](#): Secondary Optimal Perturbation Growth in Hartmann Channel Flow

**PO.FM07-1.08.124** | [Kozlov, Nikolai](#): Flow structure in a rotating cylinder with fluid and a free light body at vibration

**PO.FM07-1.09.125** | [Marques, Larissa](#): Effects of curvature variations in a transitional boundary layer on heat transfer

**PO.FM07-1.11.127** | [Panina, Alexandra](#): Nonlinear disturbance evolution in supersonic boundary layers on the swept wing

**PO.FM07-1.12.128** | [Rouquier, Anthony](#): Numerical study of the transition to turbulence in particulate pipe flows

**PO.FM07-1.13.129** | [Seddighi, Amirreza](#): Use of natural instabilities for enhancement of flow mixing in annuli

**PO.FM07-1.14.130** | [Subbotin, Stanislav](#): Effect of librations on the dynamics of free inner core and liquid in rotating cavity

**PO.FM07-1.15.131** | [Takagi, Shohei](#): Detection of a logarithmic singular point behind an airfoil model at low Reynolds numbers

**PO.FM07-1.16.132** | [Tuliszka-Sznitko, Ewa](#): Numerical study of the Tsyler-Couette flow using DNS/SVV

**PO.FM07-1.17.133** | [Vafadar Moradi, Hadi](#): Sliding Couette flow in ribbed annuli

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POSTERS

**PO.FM07-1.18.134** | [Verschaeve, Joris](#): Convective instability of the boundary layer under solitary waves

**PO.FM07-1.19.135** | [Yang, Changwei](#): Flow characteristics and structural stability in a ventilated cabin mock-up

**PO.FM07-1.20.136** | [Yatskikh, Aleksey](#): Evolution of Localized Artificial Disturbance in 2d Supersonic Boundary Layer

**PO.FM07-1.21.137** | [Yudin, Mikhail](#): Cylinder instability in circulation flow bounded by external cylindrical wall

#### FM12 - Non-Newtonian and Complex Fluids

**Room:** 520f

**PO.FM12-1.01.139** | [Alexandrou, Andreas](#): Startup Poiseuille flow of a Bingham fluid with or without thixotropic behavior

**PO.FM12-1.02.140** | [Benslimane, Abdelhakim](#): The Temperature Effect on the Rheological Properties of Carboxymethyl Cellulose Solutions

**PO.FM12-1.03.141** | [Descher, Stefan](#): Viscoelastic and empirical models compared in context of flows in extruders

**PO.FM12-1.04.142** | [Jay, Pascal](#): Recirculating flow past a cylinder of a yield stress fluid

**PO.FM12-1.05.143** | [Maleki, Amir](#): Axial dispersion in weakly turbulent flows of viscoplastic fluids

**PO.FM12-1.06.144** | [Pierre, Saramito](#): A damped Newton algorithm for computing viscoplastic fluid flows

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	<b>MS04 - Nonlinear Dynamics of Engineering Systems – Nonlinear Dynamics in MEMS and NEMS</b> <i>Chair: M. Amabili &amp; J. Warminski</i>	<b>MS05 - Soft Solid Active Matter</b> <i>Chair: Maria Eziel-Jezewska</i>	<b>FM02 - Boundary Layers</b> <i>Chair: Michael Gaster</i>	<b>FM03 - Combustion and Flames</b> <i>Chair: Ann Karagozian</i>
16:10-16:30	<b>TS.MS04-5.01</b> Yabuno, Hiroshi: Self-excited microcantilevers for sensing applications	<b>TS.MS05-5.01</b> Liu, Ling: Computational Modelling of Light-switchable Surface Topographies Using Liquid Crystal Polymers	<b>TS.FM02-4.01 (INVITED)</b> Reed, Helen: Hypersonic boundary layer instabilities	<b>TS.FM03-1.01 (INVITED)</b> Higgins, Andrew: Percolating reactive waves: Flames in the discrete regime
16:30-16:50	<b>TS.MS04-5.02</b> Dou, Suguang: Tailoring nonlinear dynamics of microbeam resonators with electrostatic actuation	<b>TS.MS05-5.02</b> Neukirch, Sebastien: Coiling a fiber inside a drop provides a highly stretchable device	<b>TS.FM02-4.02</b> Wu, Xuesong: Response and receptivity of a hypersonic boundary layer to free-stream disturbances	<b>TS.FM03-1.02</b> Oran, Elaine: Shock-Flame Complexes: Transitional and Steady States
16:50-17:10	<b>TS.MS04-5.03</b> Park, Sangtak: Evidence of an intermittency route to chaos in electrostatic mems	<b>TS.MS05-5.03</b> Lu, Tongqing: Nonlinear characteristics of dielectric elastomers under electromechanical coupling loading	<b>TS.FM02-4.03</b> Paredes, Pedro: Interaction of supersonic boundary layer instabilities with stationary streamwise streaks	<b>TS.FM03-1.03</b> Jin, Tai: Direct numerical simulation of turbulence-detonation interaction: Parametric study
17:10-17:30	<b>TS.MS04-5.04</b> Kalafut, Devin: Multistability of a cantilever MEMS/NEMS capacitive switch model	<b>TS.MS05-5.04</b> Zhu, Jian: Voltage-induced buckling and wrinkling in a dielectric elastomer	<b>TS.FM02-4.04</b> Marensi, Elena: Effect of medium-intensity free-stream vorticity on a compressible boundary layer	<b>TS.FM03-1.04</b> Radulescu, Matei: Dynamics of gaseous detonations with global mass divergence
17:30-17:50	<b>TS.MS04-5.05</b> Ribeiro, Pedro: Non-linear Modes of Vibration of Cnts	<b>TS.MS05-5.05</b> Jandron, Michael: Exploring band gap tunability in phononic crystals using dielectric elastomers	<b>TS.FM02-4.05</b> Bodony, Daniel: Instability and Transition of a Mach 5.8 ZPGBL Over a Thermomechanically Compliant Panel	<b>TS.FM03-1.05</b> Palecka, Jan: Coupling and quenching in dual-front flames
17:50-18:10	<b>TS.MS04-5.06</b> Lamarque, Claude Henri: Symmetry-breaking in a threenanomechanical-resonator array for mass detection	<b>TS.MS05-5.06</b> Liu, Taixiang: Research on the microstructure and the property of magnetorheological elastomer	<b>TS.FM02-4.06</b> Denier, Jim: The post-collisional boundary layer on an impulsively rotated sphere	<b>TS.FM03-1.06</b> Lam, Fredric: Front roughening of a flame in a discrete source system

TS.FM06-4	524bc	TS.FM07-2	525ab	TS.FM12-4	520f	TS.FM14-4	524a
<b>FM06 - Drops, Bubbles and Multiphase Flows</b> <i>Chair: Detlef Lohse</i>		<b>FM07 - Flow Instability and Transition</b> <i>Chair: Xiaohua Wu</i>		<b>FM12 - Non-Newtonian and Complex Fluids</b> <i>Chair: Gary Leal</i>		<b>FM14 - Turbulence</b> <i>Chair: Rahul Pandit</i>	
<b>TS.FM06-4.01</b> Ganan-Calvo, Alfonso: From the onset of electrospray and disintegration of leaky-dielectric drops to steady cone-jet		<b>TS.FM07-2.01</b> Bonne, Nicolas: Global stability analysis of a shock wave boundary layer interaction, including a transition model		<b>TS.FM12-4.01 (INVITED)</b> Anderson, Patrick: Start-up of shear flow of 2D particle suspensions in viscoelastic fluids		<b>TS.FM14-4.01</b> Biferale, Luca: Turbulence under rotation at high numerical resolution: Eulerian and Lagrangian statistics	
<b>TS.FM06-4.02</b> Gerbeth, Gunter: Magnetically induced cavitation and nano-particle dispersion in liquid metals		<b>TS.FM07-2.02</b> Healey, Jonathan: Using inflexion points to stabilize boundary layers		<b>TS.FM12-4.02</b> Sedes, Omer: Inertial Suspension Flows in Bifurcating Channels: Experiments and Modelling		<b>TS.FM14-4.02</b> Donzis, Diego: Asymptotic states in turbulence: The emergence of universality and intermittency	
<b>TS.FM06-4.03</b> Zhang, Rui: The characteristics of droplets impacting on closed-cell hydrophobic surfaces		<b>TS.FM07-2.03</b> Farano, Mirko: Nonlinear optimal coherent structures in turbulent channel flow		<b>TS.FM12-4.03</b> Kunhappan, Deepak: Numerical modelling of cellulose micro/nanofibril suspensions		<b>TS.FM14-4.03</b> Gotoh, Toshiyuki: Inertial and inertial convective ranges and crossover lengths	
<b>TS.FM06-4.04</b> Basu, Saikat: On Modeling Drop Impacts at Shallow Angles on Flowing Soap Films		<b>TS.FM07-2.04</b> Kunii, Kohei: Helical turbulence and puff in transitional sliding Couette flow		<b>TS.FM12-4.04</b> Evans, Arthur: Membrane dynamics in anisotropic media		<b>TS.FM14-4.04</b> Meneveau, Charles: High-order statistics and random additive model for turbulent boundary layers	
<b>TS.FM06-4.05</b> Bonn, Daniel: Universal rescaling of drop impact on smooth and rough surfaces		<b>TS.FM07-2.05</b> Mittal, Sanjay: Experimental investigation of flow past a sphere in the regime of boundary layer transition		<b>TS.FM12-4.05</b> Swan, James: Elasto-hydrodynamic Network Analysis of Colloidal Gels		<b>TS.FM14-4.05</b> Miura, Hideaki: Scale-hierarchy in homogeneous Hall MHD turbulence	
<b>TS.FM06-4.06</b> Josserand, Christophe: Controlling crack dynamics using drop impact on cold substrates		<b>TS.FM07-2.06</b> Eckhardt, Bruno: Exact coherent structures for the turbulent cascade		<b>TS.FM12-4.06</b> Ness, Christopher: Rheological modelling and simulation of shear thickening in a bidisperse suspension		<b>TS.FM14-4.06</b> Okamoto, Naoya: Turbulent/non-turbulent interface in magnetohydrodynamic channel flow	

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	TS.FM16-4 521abc	TS.SM03-1 518a	TS.SM04-4 516a	TS.SM05-4 519b
	<b>FM16 - Waves in Fluids</b> <i>Chair: Fabrice Veron</i>	<b>SM03 - Damage Mechanics</b> <i>Chair: Ron Peerlings</i>	<b>SM04 - Elasticity</b> <i>Chair: Thomas Pence</i>	<b>SM05 - Fracture Mechanics</b> <i>Chair: R. Narasimhan</i>
16:10-16:30	<b>TS.FM16-4.01</b> Grue, John: Nonlinear vs. linear supercritical dead water	<b>TS.SM03-1.01 (INVITED)</b> Hild, François: In situ observations of strained bands and ductile damage in thin aluminum alloy sheets	<b>TS.SM04-4.01 (INVITED)</b> Triantafyllidis, Nicolas: Freedericksz Instability for the Twisted Nematic Device; A 3D Analysis	<b>TS.SM05-4.01 (INVITED)</b> Ponson, Laurent: Cracking the crack: What do we learn from the statistical properties of fracture surfaces?
16:30-16:50	<b>TS.FM16-4.02</b> Liu, Hua: Generation and runup of triple solitary waves on plane slope	<b>TS.SM03-1.02 (INVITED)</b> Pandolfi, Anna: A model of poro-mechanical damaging material	<b>TS.SM04-4.02</b> Bellis, Cédric: Converting strain maps into elasticity maps for materials with small contrast	<b>TS.SM05-4.02</b> Woelke, Pawel: Investigation of fracture in large ductile plates
16:50-17:10	<b>TS.FM16-4.03</b> Horne Iribarne, Ernesto: Transport of particles by internal waves	<b>TS.SM03-1.03</b> Brünic, Michael: Biaxial experiments and numerical analysis of stress-state-dependent damage and failure	<b>TS.SM04-4.03</b> Shifrin, Efim: Identification of small inhomogeneities in 3D thermoelasticity	<b>TS.SM05-4.03</b> Zikry, Mohammed: Dynamic fracture and orientation relations of h.c.p.-f.c.c. systems
17:10-17:30	<b>TS.FM16-4.04</b> Lerisson, Gaétan: Internal Wave in the Ocean, Local, Global Stability and Transient Growth	<b>TS.SM03-1.04</b> Chen, Naigeng: Experimental determination of non-woven bond strength distributions.	<b>TS.SM04-4.04</b> Peerlings, Ron: Hygro-Mechanical Structure-Property Relations for Paper Sheets	<b>TS.SM05-4.04</b> Baxeavanis, Theocharis: Thermomechanical Fracture in Shape Memory Alloys
17:30-17:50	<b>TS.FM16-4.05</b> Buckley, Marc: Structure of the airflow above surface gravity waves	<b>TS.SM03-1.05</b> De Geus, Tom: Systematic analysis of fracture in two-phase materials at all stages	<b>TS.SM04-4.05</b> Shmuel, Gal: The universality of the band structure of layered composites	<b>TS.SM05-4.05</b> Hoshide, Toshihiko: Statistical Simulation of Biaxial Fatigue Behaviour Affected by Microstructure
17:50-18:10	<b>TS.FM16-4.06</b> Deike, Luc: Air entrainment and bubble statistics in three-dimensional breaking waves	<b>TS.SM03-1.06</b> Fan, Zhengxuan: Atomistic simulation of surface cyclic slip irreversibility in FCC metals	<b>TS.SM04-4.06</b> Matlack, Kathryn: Controlling band gaps with geometry in composite elastic meta-structures	<b>TS.SM05-4.06</b> Li, Yan: Prediction of fracture toughness scatter of composite materials as function of microstructure

TS.SM07-4 515a	TS.SM08-1 519a	TS.SM09-4 518b	TS.SM10-4 518c
<b>SM07 - Impact Mechanics and Wave Propagation</b> <i>Chair: Gennady Kanel</i>	<b>SM08 - Multi-component Materials and Composites</b> <i>Chair: Nancy Sottos</i>	<b>SM09 - Phase and Chemical Transformations and Thermo-mechanical Phenomena</b> <i>Chair: Sam Daly</i>	<b>SM10 - Sizescale Effects in Materials</b> <i>Chair: Sinisa Mesarovic</i>
<b>TS.SM07-4.01</b> (INVITED) Zaretsky, Eugene: The Influence of Temperature and Crystal Structure on High Strain Rate Behavior of Metals	<b>TS.SM08-1.01</b> (INVITED) Ponte Castañeda, Pedro: Fully optimized variational estimates for the macroscopic response of nonlinear composites	<b>TS.SM09-4.01</b> (INVITED) Sun, Qingping: Enhance fatigue resistance of NiTi by grain size gradient	<b>TS.SM10-4.01</b> (INVITED) Bardella, Lorenzo: Implicit finite element algorithms for higher-order gradient plasticity theory
<b>TS.SM07-4.02</b> Czarnota, Christophe: Shock wave structures in porous media accounting for micro-inertia effects	<b>TS.SM08-1.02</b> Lopez-Pamies, Oscar: Nonlinear Electroelastic Deformations of Dielectric Elastomer Composites	<b>TS.SM09-4.02</b> Constantinescu, Andrei: Two scale analysis of the fatigue of shape memory alloys	<b>TS.SM10-4.02</b> Altenbach, Holm: An Energy-Based Formulation of Equivalent Inhomogeneity for Interphase Models
<b>TS.SM07-4.03</b> Zhou, Tingting: Void collapse and hot spot formation in shocked HMX: A large-scale molecular dynamics study	<b>TS.SM08-1.03</b> Brenner, Renald: Approximate plastic yield criterion and hardening of porous single crystals	<b>TS.SM09-4.03</b> Daly, Samantha: The effect of microstructure on phase transformation in shape memory alloys	<b>TS.SM10-4.03</b> Reddy, Daya: Some features of dissipative theories of strain-gradient plasticity
<b>TS.SM07-4.04</b> Thomson, Stuart: Violent elastic-plastic wave interactions	<b>TS.SM08-1.04</b> Mattei, Ornella: Bounds on the response of viscoelastic composites in the time domain	<b>TS.SM09-4.04</b> Favier, Denis: Uniform or localized pure bending deformation of superelastic NiTi thin wires	<b>TS.SM10-4.04</b> Jүүл, Kristian: Steady-state numerical modeling of size effects in wire drawing
<b>TS.SM07-4.05</b> Trainiti, Giuseppe: Broken time-reversal symmetry in beams in longitudinal motion	<b>TS.SM08-1.05</b> Doghri, Issam: Finite strain viscoelastic-viscoplastic modeling of polymers and application to composites	<b>TS.SM09-4.05</b> Lepage, William: Thermomechanical Characterization of Shape Memory Alloy Mode I Fracture Behavior	<b>TS.SM10-4.05</b> Lebensohn, Ricardo: Spectral non-local crystal plasticity modelling of size effects in polycrystals
	<b>TS.SM08-1.06</b> Voropaieff, Jean-Pierre: Modeling and identification of the constitutive behaviour of MRE's.	<b>TS.SM09-4.06</b> Phillips, Francis: Fracture of Ni60Ti40 shape memory alloy notched plates under cooling	<b>TS.SM10-4.06</b> Puri, Saurabh: Modeling of size effects in plasticity using field dislocation mechanics

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TS.SM14-4	515bc
<b>SM14 - Stability of Structures</b> <i>Chair: Katia Bertoldi</i>	
<b>TS.SM14-4.01</b> (INVITED) Reis, Pedro: Defect-controlled buckling of depressurized elastic shells	
<b>TS.SM14-4.02</b> Tanaka, Hiro: Transformation shift of periodic cellular structure by controlling internal stiffness	
<b>TS.SM14-4.03</b> Wehmeyer, Steven: Non-linear response of elastic snap-through structures	
<b>TS.SM14-4.04</b> Wen, Guangyang: Dynamic Stability of Biaxially Strained Thin Sheets Under High Strain-Rates	
<b>TS.SM14-4.05</b> Xu, Fan: On axisymmetric/diamond-like mode transitions in core-shell cylinders under axial compression.	
<b>TS.SM14-4.06</b> Yu, Tian: Multi-stability and bifurcations of thin bands	

TS.SM15-1	516b
<b>SM15 - Computational Solid Mechanics</b> <i>Chair: Ricardo Lebensohn</i>	
<b>TS.SM15-1.01</b> (INVITED) Djaka, Komlan Senam: A FFT method for continuum dislocation mechanics with heterogeneous elasticity	
<b>TS.SM15-1.02</b> Alleman, Coleman: Distribution-enhanced homogenization: Theory and application	
<b>TS.SM15-1.03</b> Goenezen, Sevan: Non-destructive characterization of heterogeneous solids from limited surface measurements	
<b>TS.SM15-1.04</b> Cui, Yi: Molecular dynamics study of the interfacial debonding due to cylindrical nano-inclusion	
<b>TS.SM15-1.05</b> Hallberg, Håkan: Microstructure evolution in Cu thin films, investigated by ab-initio and level set modeling	

TS.FS02-1	522bc
<b>FS02 - Exascale Computing</b> <i>Chair: PK Yeung</i>	
<b>TS.FS02-1.01</b> (INVITED) Ghattas, Omar: Big data meets big models: Towards exascale Bayesian inverse problems	
<b>TS.FS02-1.02</b> (INVITED) Alexeev, Dmitry: An HPC framework for Bayesian uncertainty quantification of flows across scales	
<b>TS.FS02-1.03</b> Hori, Muneo: Earthquake Hazard and Disaster Simulation Using Urban Area Model of $10.7 \cdot 10^9$ Degree-Of-Freedom	
<b>TS.FS02-1.04</b> Yoshimura, Shinobu: Full scale seismic response simulation of nuclear power plant subjected to strong earthquake	
<b>TS.FS02-1.05</b> Konduri, Aditya: Implementation of exascale asynchronous solvers for PDEs	
<b>TS.FS02-1.06</b> Kawai, Hiroshi: Subdomain local FE solver implementation using iterative solver in domain decomposition method	

**Special Lectures and Presentations**

Please see pages 37-38 for full descriptions of the prize winners.

08:30 – 09:30

**HP – Hill Prize Lecture***Chair: Ben Freund*

Ogden, Ray: Application of nonlinear elasticity to soft tissue  
biomechanics  
Room 517abc

09:30 – 10:30

**BP – Batchelor Prize Lecture***Chair: Grae Worster*

Goldstein, Raymond: Fluid Dynamics at the Scale of the Cell  
Room 517abc

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TS.MS04-6	517d
<b>MS04 - Nonlinear Dynamics of Engineering Systems – System Identification and Uncertainties</b> <i>Chairs: W. Lacarbonara &amp; L. Manevitch</i>	
<b>TS.MS04-6.01</b>	Amabili, Marco: Nonlinear identification of damping in large amplitude vibrations of plates and panels
<b>TS.MS04-6.02</b>	Moore, Keegan: Nonlinear system identification of mechanical interfaces based on wave propagation
<b>TS.MS04-6.03</b>	Bajaj, Anil: Uncertainty quantification and robustness issues in planar nonlinear resonant structures
<b>TS.MS04-6.04</b>	Agarwal, Vipin: Studies of rotor-stator system subjected to noise excitations
<b>TS.MS04-6.05</b>	Hong, Ling: Transient responses of a forced triple-well potential system with fuzzy uncertainty
<b>TS.MS04-6.06</b>	Stefanski, Andrzej: Synchronization of self-induced friction oscillators

TS.MS05-6	516cde
<b>MS05 - Soft Solid Active Matter</b> <i>Chair: Liying Jiang</i>	
<b>TS.MS05-6.01</b>	Lu, Nanshu: Thickness and d33 effects on the energy conversion and actuation of piezoelectric unimorphs
<b>TS.MS05-6.02</b>	Lucantonio, Alessandro: Poroelastic toughening in polymer gels: A theoretical and numerical study
<b>TS.MS05-6.03</b>	Ma, Zhuo: Fracture of soft elastic foam
<b>TS.MS05-6.04</b>	Qi, H. Jerry: Reversible shape changing components by 3D printing
<b>TS.MS05-6.05</b>	Silberstein, Meredith: Constitutive theory for mechanochemically-based energy dissipating elastomer
<b>TS.MS05-6.06</b>	Wang, Shuolun: Modeling the effect of inelasticity on instabilities in soft dielectrics

TS.FM01-3	520abc
<b>FM01 - Biological Fluid Mechanics</b> <i>Chair: Annie Viallat</i>	
<b>TS.FM01-3.01</b>	M, M. Jimreeves: Vortex formation and transport from a rotating plate in still fluid
<b>TS.FM01-3.02</b>	Wong, Jaime: How animals use spanwise flexibility for extreme manoeuvrability
<b>TS.FM01-3.03</b>	Xin, Zhiqiang: Vorticity dynamics of maneuver locomotions of the three dimensional bionic fish
<b>TS.FM01-3.04</b>	Yeaton, Isaac: The stability of flying snakes during transient glides
<b>TS.FM01-3.05</b>	Socha, John: A new understanding of aerial undulation in flying snakes

TS.FM02-5	520e
<b>FM02 - Boundary Layers</b> <i>Chair: Xuesong Wu</i>	
<b>TS.FM02-5.01</b>	Gaster, Michael: Boundary layer transition initiated by a random excitation
<b>TS.FM02-5.02</b>	Walton, Andrew: Localized self-sustaining processes in the asymptotic suction boundary layer
<b>TS.FM02-5.03</b>	Mao, Xuerui: Nonlinear optimal streaks induced by free-stream disturbances in flow over a thin flat plate
<b>TS.FM02-5.04</b>	Wang, Zhefu: Control of crossflow instability using plasma actuators
<b>TS.FM02-5.05</b>	White, Christopher: Transition to turbulence in reciprocating channel flow
<b>TS.FM02-5.06</b>	Munsi, Monalisa: Magnetohydrodynamic flow in channels with cross-channel pressure interaction

TS.FM03-2	520d	TS.FM06-5	524bc	TS.FM07-3	525ab	TS.FM08-1	521abc
<b>FM03 - Combustion and Flames</b> <i>Chair: Matthew Juniper</i>		<b>FM06 - Drops, Bubbles and Multiphase Flows</b> <i>Chair: Jeffrey Giacomini</i>		<b>FM07 - Flow Instability and Transition</b> <i>Chair: Laurette Tuckerman</i>		<b>FM08 - Flow in Thin Films</b> <i>Chair: Christian Ruyer-Quil</i>	
<b>TS.FM03-2.01</b> (INVITED) Oefelein, Joseph: Dynamics of gas-liquid interfaces in high-pressure systems		<b>TS.FM06-5.01</b> Kant, Pallav: Sequential droplet deposition on geometrically and chemically patterned substrates		<b>TS.FM07-3.01</b> Kanazawa, Takahiro: Exponential increase of the lifetime with the number of coherent structures		<b>TS.FM08-1.01</b> (INVITED) Eggers, Jens: Arrested bubble rise in a narrow tube	
<b>TS.FM03-2.02</b> Attili, Antonio: Turbulent premixed Bunsen flames over a wide range of Reynolds number		<b>TS.FM06-5.02</b> Colinet, Pierre: Leidenfrost drops on a liquid substrate: Theory and experiments		<b>TS.FM07-3.02</b> Wesfreid, José: Instabilities in the flow behind rotating bluff bodies		<b>TS.FM08-1.02</b> Jensen, Oliver: Drop spreading with random viscosity	
<b>TS.FM03-2.03</b> Capecehatro, Jesse: Adjoint-informed ignition characterization		<b>TS.FM06-5.03</b> Magnaudet, Jacques: Short- and long-term tailing dynamics during the settling of a sphere through an interface		<b>TS.FM07-3.03</b> Marquet, Olivier: A new formalism for identifying wavemaker regions of linear instabilities		<b>TS.FM08-1.03</b> Wilson, Stephen: A fluid dynamical model for anti-surfactant solutions	
<b>TS.FM03-2.04</b> Semenov, Ilya: Modeling of detonation processes in H <sub>2</sub> -air mixtures with concentration gradients		<b>TS.FM06-5.04</b> Villermaux, Emmanuel: Explosive Fragmentation		<b>TS.FM07-3.04</b> Asai, Masahito: Experimental investigation of instability of convecting local high-shear layer		<b>TS.FM08-1.04</b> Dallaston, Michael: Axisymmetric self-similar rupture of thin films with general disjoining pressure	
<b>TS.FM03-2.05</b> Dunmon, Jared: 3D Flame Characterization via X-ray Computed Tomography		<b>TS.FM06-5.05</b> Prosperetti, Andrea: Fully resolved simulation of fluid flow with suspended particles		<b>TS.FM07-3.05</b> Fukudome, Koji: Relaminarization of stably stratified turbulent Poiseuille flows at low Reynolds number		<b>TS.FM08-1.05</b> Goel, Sachin: Drainage of a thin film of Bingham fluid between two viscous Newtonian drops	
<b>TS.FM03-2.06</b> Osborne, Jeffrey: Particle dynamics through turbulent premixed flames using 10 kHz TPV, OH PLIF, and CH <sub>2</sub> O PLIF		<b>TS.FM06-5.06</b> Zaleski, Stephane: 3D DNS of spray formation in gas-assisted atomization		<b>TS.FM07-3.06</b> Chomaz, Jean-Marc: Optimal Perturbations of a Counter-rotating Vortex Pair in Stratified Flows		<b>TS.FM08-1.06</b> Ait Abderrahmane, Hamid: Tear Film Dynamics on a Spherical Cornea	

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TS.FM12-5	520f
<b>FM12 - Non-Newtonian and Complex Fluids</b> <i>Chair: Fernando Pinho</i>	
<b>TS.FM12-5.01</b> (INVITED)	Hidema, Ruri: Vortex Deformation on Two-dimensional Turbulence Affected by Polymers
<b>TS.FM12-5.02</b>	Choueiri, George: On the nature of elasto-inertial turbulence
<b>TS.FM12-5.03</b>	Nguyen, Minh Quan: Effect of visco-elasticity on the small scale statistics of homogeneous isotropic turbulence
<b>TS.FM12-5.04</b>	Horiuti, Kiyosi: Contravariant and Covariant Polymers in Elasto-inertial Viscoelastic Turbulence
<b>TS.FM12-5.05</b>	Schuh, Jonathon: Asymmetric surface textures and non-Newtonian fluids for decreased friction
<b>TS.FM12-5.06</b>	Page, Jacob: Non-local vorticity generation by surface roughness in viscoelastic shear flows

TS.FM14-5	524a
<b>FM14 - Turbulence</b> <i>Chair: Martin Oberlack</i>	
<b>TS.FM14-5.01</b> (INVITED)	Pandit, R.: Turbulence in Cahn-Hilliard binary-fluid mixtures
<b>TS.FM14-5.02</b>	Miyazaki, Takeshi: Clustering and Entropy Growth of Quasi-geostrophic Point Vortices
<b>TS.FM14-5.03</b>	Favier, Benjamin: Generating Jovian-like zonal jets in a rapidly rotating fluid experiment
<b>TS.FM14-5.04</b>	Caulfield, Colm-Cille: Turbulent layer dynamics in stratified Taylor-Couette flow
<b>TS.FM14-5.05</b>	Lee, Myoungkyu: Extreme-Scale Motions in Turbulent Couette Flows
<b>TS.FM14-5.06</b>	Kaneda, Yukio: Two-point statistics in the log-law region in DNS of turbulent channel flow

TS.SM03-2	518a
<b>SM03 - Damage Mechanics</b> <i>Chair: Kamran Behdinan</i>	
<b>TS.SM03-2.01</b> (INVITED)	Poh, Leong Hien: A gradient damage formulation with transient nonlocal interaction
<b>TS.SM03-2.02</b>	Gurses, Ercan: Experimental and numerical investigation of impact induced damage progression in CFRP composites
<b>TS.SM03-2.03</b>	Kouhia, Reijo: Modelling of anisotropic fatigue
<b>TS.SM03-2.04</b>	Kuna, Meinhard: Damage Model of a Particle Reinforced TRIP-Steel Matrix Composite
<b>TS.SM03-2.05</b>	Larsson, Ragnar: Damage growth in compressive loaded fibre reinforced composites
<b>TS.SM03-2.06</b>	Liang, Bowen: An automated multiscale simulation of the failure response of adhesive-bonded structural joints

TS.SM04-5	516a
<b>SM04 - Elasticity</b> <i>Chair: Fumihiko Ashiro</i>	
<b>TS.SM04-5.01</b>	Segev, Reuven: On the relation between generalized stress theory and electrodynamic
<b>TS.SM04-5.02</b>	Pence, Thomas: Swelling induced burst in hyperelastic spheres and cylinders
<b>TS.SM04-5.03</b>	Man, Chi-Sing: Remarks on isotropic extension of anisotropic constitutive functions via structural tensors
<b>TS.SM04-5.04</b>	Itskov, Mikhail: Mechanics of nanoparticles filled elastomers based on polymer chain length statistics
<b>TS.SM04-5.05</b>	Dorfmann, Luis: Modeling of Residually Stressed Materials
<b>TS.SM04-5.06</b>	Weil, Gidon: Finite shear of thin-wall composite spheres

TS.SM05-5 519b	TS.SM07-5 515a	TS.SM08-2 519a	TS.SM09-5 518b
<b>SM05 - Fracture Mechanics</b> <i>Chair: Stephanie Heyden</i>	<b>SM07 - Impact Mechanics and Wave Propagation</b> <i>Chair: Andrei Metrikine</i>	<b>SM08 - Multi-component Materials and Composites</b> <i>Chair: Pierre Suquet</i>	<b>SM09 - Phase and Chemical Transformations and Thermomechanical Phenomena</b> <i>Chair: Valery Levitas</i>
<b>TS.SM05-5.01</b> Ariza, Pilar: Nanovoid cavitation in Aluminum	<b>TS.SM07-5.01</b> Engelbrecht, Jüri: Interaction of deformation waves with internal structures in solids	<b>TS.SM08-2.01 (INVITED)</b> Brassart, Laurence: Homogenization-based constitutive modelling for diffusion problems	<b>TS.SM09-5.01 (INVITED)</b> Qu, Jianmin: Interface-reaction controlled diffusion in binary solids
<b>TS.SM05-5.02</b> Li, Jiaoyan: Topological Design of Graphene with Enhances Fracture Toughness	<b>TS.SM07-5.02</b> Thorin, Anders: Nonsmooth modal analysis of piecewise-linear impact systems	<b>TS.SM08-2.02</b> Bornert, Michel: Experimental investigation of grain boundary sliding in polycrystalline halite	<b>TS.SM09-5.02</b> Guo, Shu: An integrated temporal multi-scale multi-physics model with damage in multifunctional materials
<b>TS.SM05-5.03</b> Khosrownejad, Mostafa: Crack propagation mechanisms in amorphous LiSi alloys: Insights from molecular dynamics	<b>TS.SM07-5.03</b> Grinberg, Itay: Multi-site discrete breathers in finite vibro-impact chain	<b>TS.SM08-2.03</b> Madra, Anna: A macroscale model of short fiber composite based on x-ray microtomography	<b>TS.SM09-5.03</b> Panchenko, Artem: Analysis of Mie-Grüneisen equation of state for two-dimensional crystal lattices
<b>TS.SM05-5.04</b> Guin, Laurent: Molecular dynamics based cohesive zone model for polycrystalline graphene	<b>TS.SM07-5.04</b> Urman, David: Nonlinear modes of vibration of vibro-impact duffing oscillators	<b>TS.SM08-2.04</b> Kubair, Dharendra: Statistically augmented boundary conditions for statistically equivalent RVEs	<b>TS.SM09-5.04</b> Babenkov, Mikhail: Unsteady heat conduction processes in a harmonic crystal with a substrate potential
<b>TS.SM05-5.05</b> Yang, Hui: Fracture toughness of Li <sub>x</sub> Si alloys in lithium ion battery	<b>TS.SM07-5.05</b> Singh, Harmeet: Pick-up, impact and peeling	<b>TS.SM08-2.05</b> Vandepitte, Dirk: Modelling variability in composite fibre reinforcement geometry data	<b>TS.SM09-5.05</b> Akbarzadeh, Hamid: Multiscale Modeling of Thermal Wave: From Non-local Continuum to Molecular Dynamics
<b>TS.SM05-5.06</b> Ding, Bin: Atomistic mechanisms of fracture in amorphous lithiated silicon	<b>TS.SM07-5.06</b> Fehr, Joerg: Acceleration of car crash simulations	<b>TS.SM08-2.06</b> Cho, Hansohl: Morphological Micromechanics of Copolymeric Elastomers	<b>TS.SM09-5.06</b> Issa, Sally: Influence of martensitic phase transformation on crack propagation in austenitic steel

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TS.SM10-5	518c
<b>SM10 - Scalescale Effects in Materials</b> <i>Chair: Lorenzo Bardella</i>	
<b>TS.SM10-5.01</b> (INVITED) Mayer, Jason: A study of two approaches to higher-order single crystal plasticity	
<b>TS.SM10-5.02</b> Petryk, Henryk: A minimal gradient-enhancement of crystal plasticity theory	
<b>TS.SM10-5.03</b> Yalcinkaya, Tuncay: Microstructure evolution in plasticity	
<b>TS.SM10-5.04</b> Wei, Yujie: Mechanical properties and deformation mechanisms in materials with gradient twin structures	
<b>TS.SM10-5.05</b> Guo, Ya-Fang: Investigation on the size effect of twinning in HCP single crystals	
<b>TS.SM10-5.06</b> Zhu, Linli: Modeling the mechanical properties of FCC polycrystalline metals with hierarchical twins	

TS.SM15-2	516b
<b>SM15 - Computational Solid Mechanics</b> <i>Chair: Stefan Hartmann</i>	
<b>TS.SM15-2.01</b> (INVITED) Reese, Stefanie: Anisotropic damage coupled with plasticity - model development and comparison with experiments	
<b>TS.SM15-2.02</b> Cheng, Long: Modeling of porous materials with isotropic-kinematic hardenable matrix under cyclic loading	
<b>TS.SM15-2.03</b> Tralli, Antonio: Fast kinematic limit analysis of masonry vaults: A new gar-nurbs based approach	
<b>TS.SM15-2.04</b> Nagarajan, Anand: Conform to Interface Structured Adaptive Mesh Refinement (CISAMR)	
<b>TS.SM15-2.05</b> Uetsuji, Yasutomo: Multiscale Numerical Study on Polycrystalline Ferroelectric Solids	
<b>TS.SM15-2.06</b> Lee, James: Sequential and concurrent multiscale modeling: From molecular dynamics to continuum mechanics	

TS.FS02-2	522bc
<b>FS02 - Exascale Computing</b> <i>Chair: Shinobu Yoshimura</i>	
<b>TS.FS02-2.01</b> (INVITED) Idomura, Yasuhiro: Computational challenges towards exa-scale fusion plasma turbulence simulations	
<b>TS.FS02-2.02</b> (INVITED) Chen, Jackie: Towards Exascale Simulation of Turbulent Combustion	
<b>TS.FS02-2.03</b> Uzawa, Ken: Parallel performance of FrontFlow/Violet-Cartesian with wall-modelled LES capability	
<b>TS.FS02-2.04</b> Adams, Darren: Petascale DNS using the fast Poisson solver PSH3D	
<b>TS.FS02-2.05</b> Schumacher, Jörg: Supercomputations of low-Prandtl-number convection flows	
<b>TS.FS02-2.06</b> Wu, Xiaohua: "Turbulent Spot" Deep Inside the Turbulent Boundary Layer with Exascale Simulation	

TS.FS09-1	515bc
<b>FS09 - Foams and Cellular Materials</b> <i>Chair: Isabelle Cantat</i>	
<b>TS.FS09-1.01</b> (INVITED) Combesure, Christelle: In-plane loading of hexagonal honeycombs: Post-bifurcation and stability behavior	
<b>TS.FS09-1.02</b> (INVITED) Gaitanaros, Stavros: The effect of polydispersity on the crushing of open-cell random foams	
<b>TS.FS09-1.03</b> Berinskii, Igor: Effective elastic properties of some cellular auxetic materials	
<b>TS.FS09-1.04</b> Blanc, Baptiste: Electro osmosis at liquid interfaces	
<b>TS.FS09-1.05</b> Giustiniani, Anaïs: Silicon polyHIPES (High Internal Phase Emulsions) via reactive emulsion stabilization	
<b>TS.FS09-1.06</b> Jacques, Nicolas: A continuum approach to micro-inertia effects in closed-cell solid foams	

## Special Lectures and Presentations

08:30 – 09:20	09:20 – 10:10
<p><b>Sectional Lecture in Fluids</b> <i>Chair: Tim Pedley</i></p> <p><b>SL.FM-4</b> – Hosoi, Anette: Hydrodynamics and Hairy Surfaces <i>Room 520abc</i></p>	<p><b>Sectional Lecture in Fluids</b> <i>Chair: Nadine Aubry</i></p> <p><b>SL.FM-6</b> – Bush, John: Hydrodynamic quantum analogs <i>Room 525ab</i></p>
<p><b>Sectional Lecture in Fluids</b> <i>Chair: Jacques Magnaudet</i></p> <p><b>SL.FM-5</b> – Bodenschatz, Eberhard: The Transition to the Ultimate State in Turbulent Thermal Convection <i>Room 525ab</i></p>	<p><b>Sectional Lecture in Solids</b> <i>Chair: W. (Wei) Yang</i></p> <p><b>SL.SM-5</b> – Suo, Zhigang: Soft Machines <i>Room 516cde</i></p>
<p><b>Sectional Lecture in Solids</b> <i>Chair: Suresh Shrivastava</i></p> <p><b>SL.SM-4</b> – Rogers, John: Concepts in mechanics for 3D, bio-integrated electronics <i>Room 517d</i></p>	<p><b>Sectional Lecture in Solids</b> <i>Chair: Jean Zhu</i></p> <p><b>SL.SM-6</b> – Forest, Samuel: The micromorphic approach to gradient crystal plasticity and damage <i>Room 517d</i></p>
<p><b>Sectional Lecture in Fluids-Solids</b> <i>Chair: Gabor Stepan</i></p> <p><b>SL.FS-3</b> – Haller, George: Can solid mechanics help in understanding fluid vortices? <i>Room 516cde</i></p>	<p><b>Sectional Lecture in Solids</b> <i>Chair: Tadeusz Burczynski</i></p> <p><b>SL.SM-7</b> – Onck, Patrick: Protein mechanics: from amino acid to swimming cells <i>Room 520abc</i></p>

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TS.MS04-7	517d
<b>MS04 - Nonlinear Dynamics of Engineering Systems – Multiphysics and Vibration Reduction</b> <i>Chairs: F. Chernousko &amp; Li Qun Chen</i>	
<b>TS.MS04-7.01</b>	Gottlieb, Oded: Nonlinear spatio-temporal dynamics of an elastic panel in uniform laminar flow
<b>TS.MS04-7.02</b>	Pavlovskaja, Ekaterina: Nonlinear Vibrations of Elastically Supported Cylinder Moving in the Fluid Flow
<b>TS.MS04-7.03</b>	Romeo, Francesco: Nonlinear dynamics of an electro-mechanical system: Numerical and experimental study
<b>TS.MS04-7.04</b>	Rusinek, Rafal: Influence of temperature on middle ear with shape memory prosthesis
<b>TS.MS04-7.05</b>	Lacarbonara, Walter: Asymptotic approach to flutter control via hysteretic absorbers
<b>TS.MS04-7.06</b>	Benacchio, Simon: Dynamic behavior of a tunable magnetic vibration absorber

TS.FM01-4	520abc
<b>FM01 - Biological Fluid Mechanics</b> <i>Chair: Jonathan Freund</i>	
<b>TS.FM01-4.01 (INVITED)</b>	Tam, Daniel: Hydrodynamic vs. intracellular coupling in synchronization of eukaryotic flagella
<b>TS.FM01-4.02</b>	Chateau, Sylvain: Emergence of metachronal waves in cilia arrays: A hydrodynamic mechanism
<b>TS.FM01-4.03</b>	Lee, Tet Chuan: Modelling the endothelial glycocalyx layer in the microcirculation
<b>TS.FM01-4.04</b>	Leontini, Justin: Enhanced gas transport during high-frequency ventilation
<b>TS.FM01-4.05 (INVITED)</b>	Viallat, Annie: Physics of the mucociliary clearance in airways and the application to severe asthma
<b>TS.FM01-4.06</b>	Pak, On Shun: Propulsive thrust of a driven filament at low Reynolds number with non-uniform flexibility

TS.FM02-6	520e
<b>FM02 - Boundary Layers</b> <i>Chair: Jim Denier</i>	
<b>TS.FM02-6.01 (INVITED)</b>	Ruban, Anatoly: Viscous-inviscid interaction and boundary-layer separation in transonic flows
<b>TS.FM02-6.02</b>	Cassel, Kevin: Unsteady boundary-layer separation at finite and infinite Reynolds numbers
<b>TS.FM02-6.03</b>	Véteř, Jérôme: Investigation of fixed and moving separation in a viscous flow
<b>TS.FM02-6.04</b>	Braun, Stefan: On the Triple Deck Stage of Marginally Separated Flows
<b>TS.FM02-6.05</b>	Ben-Gida, Hadar: Leading-edge vortices as a high-lift mechanism for large aspect ratio wings
<b>TS.FM02-6.06</b>	Choi, Kwing-So: Leading edge separation control with DBD plasma actuators

TS.FM03-3	520d
<b>FM03 - Combustion and Flames</b> <i>Chair: Matei Radulescu</i>	
<b>TS.FM03-3.01 (INVITED)</b>	Carder, Daniel: Emission control challenges for compression ignition engines
<b>TS.FM03-3.02</b>	Candel, Sebastien: The Describing Function of Swirled Spray Flames
<b>TS.FM03-3.03</b>	Chatterjee, Sandipan: Swirl-stabilized non-premixed propane/air flames in a gas turbine model combustor
<b>TS.FM03-3.04</b>	Kheirkhah, Sina: Heat release rate and pressure phase differences inside an aeronautical gas turbine combustor
<b>TS.FM03-3.05</b>	Coenen, Wilfried: Global stability analysis of line-fire flickering
<b>TS.FM03-3.06</b>	Boujo, Edouard: Quantifying stochastic limit-cycle parameters from the adjoint Fokker-Planck equation

TS.FM04-1	522bc	TS.FM06-6	524bc	TS.FM07-4	525ab	TS.FM08-2	521abc
<b>FM04 - Compressible Flow</b> <i>Chair: Leon Vanstone</i>		<b>FM06 - Drops, Bubbles and Multiphase Flows</b> <i>Chair: Jacques Magnaudet</i>		<b>FM07 - Flow Instability and Transition</b> <i>Chair: François Gallaire</i>		<b>FM08 - Flow in Thin Films</b> <i>Chair: Serafim Kalliadasis</i>	
<b>TS.FM04-1.01</b> (INVITED) Austin, Joanna: Hypervelocity shock-boundary layer interactions with varying freestream composition		<b>TS.FM06-6.01</b> Sáenz, Pedro: Geometrically controlled dynamics in evaporating sessile drops		<b>TS.FM07-4.01</b> Kida, Shigeo: Flow instability in a precessing sphere		<b>TS.FM08-2.01</b> (INVITED) Bestehorn, Michael: Pattern forming instabilities in mechanically vibrating thin films	
<b>TS.FM04-1.02</b> Cinnella, Paola: Direct numerical simulations of supersonic turbulent channel flows of dense gases		<b>TS.FM06-6.02</b> Wu, Wen: Particle resuspension by a periodically-forced impinging jet		<b>TS.FM07-4.02</b> Majji, Madhu: Flow transition of neutrally buoyant suspension between concentric cylinders		<b>TS.FM08-2.02</b> (INVITED) Nepomnyashchy, Alexander: Waves in a heated liquid layer covered by insoluble surfactant	
<b>TS.FM04-1.03</b> Sciacovelli, Luca: Small scale dynamics of dense gas decaying turbulence		<b>TS.FM06-6.03</b> De Jong, Edwin: Numerical Simulation of Droplet Transport Using Switchable Hydrophobic Surfaces		<b>TS.FM07-4.03</b> Mutabazi, Innocent: Thermoelectric convection in dielectric liquids in a cylindrical annulus		<b>TS.FM08-2.03</b> Ruyer-Quil, Christian: Sheared falling film flows: An experimental and numerical study	
<b>TS.FM04-1.04</b> Alferez, Nicolas: Non-ideal shock refraction properties in dense vapours		<b>TS.FM06-6.04</b> Fontelos, Marco: Healing capillary films		<b>TS.FM07-4.04</b> Di Giovanni, Antonio: Boundary-layer stability of a generic reentry capsule with real-gas effects		<b>TS.FM08-2.04</b> Denner, Fabian: On solitary waves in periodically excited falling liquid films	
<b>TS.FM04-1.05</b> Koren, Barry: Application of a fully compressible multiphase SPH scheme to hypervelocity impacts		<b>TS.FM06-6.05</b> Nore, Caroline: Taylor instability in liquid metal columns and liquid metal batteries		<b>TS.FM07-4.05</b> Shoji, Takeshi: Effects of external forcing on transverse jet structure and mixing		<b>TS.FM08-2.05</b> Mendez, Miguel: Experimental Characterization of 2D Traveling Waves in Low Kapitza Liquid Film down a Vertical Wall	
<b>TS.FM04-1.06</b> Kluwick, Alfred: Steady transonic dense gas flow past a two-dimensional compression/expansion ramp		<b>TS.FM06-6.06</b> Bertin, Nicolas: Bubble-based Acoustic Micropropulsion: Mixing and Advanced Swimmers		<b>TS.FM07-4.06</b> Huerre, Patrick: Local and global instability of buoyant jets and plumes		<b>TS.FM08-2.06</b> Afkhami, Shahriar: On the computation of viscous forces near the moving contact line	

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	TS.FM14-6 524a	TS.SM01-1 516cde	TS.SM02-1 515a	TS.SM03-3 518a
	<b>FM14 - Turbulence</b> <i>Chair: Laurent Mydlarski</i>	<b>SM01 - Biomechanics and Biomaterials</b> <i>Chair: Gang Bao</i>	<b>SM02 - Contact and Friction</b> <i>Chair: Irina Goryacheva</i>	<b>SM03 - Damage Mechanics</b> <i>Chair: Lizhi Sun</i>
10:30-10:50	<b>TS.FM14-6.01</b> Okino, Shinya: Spectral analyses of high Prandtl number stratified turbulence	<b>TS.SM01-1.01 (INVITED)</b> McMeeking, Robert: Remodeling of cardiomyocytes in vitro	<b>TS.SM02-1.01 (INVITED)</b> Fineberg, Jay: Slippery but tough - the rapid fracture of lubricated frictional interfaces	<b>TS.SM03-3.01 (INVITED)</b> Sun, Lizhi: Dynamic Viscoelastic Modeling of Interfacial Debonding for Magnetorheological Nanocomposites
10:50-11:10	<b>TS.FM14-6.02</b> Gaskin, Susan: Effect of Background Turbulence on Passive Scalar Mixing Within a Turbulent Jet	<b>TS.SM01-1.02</b> Holzapfel, Gerhard: Experimental and computational analysis of aortic dissection	<b>TS.SM02-1.02</b> Barber, James: slip-weakening laws and apparent static friction coefficient	<b>TS.SM03-3.02</b> Longère, Patrice: Modelling of shear failure caused by adiabatic shear banding and subsequent microvoiding
11:10-11:30	<b>TS.FM14-6.03</b> Dodd, Michael S.: Effects of viscosity ratio on droplet-laden isotropic turbulence	<b>TS.SM01-1.03</b> Ehret, Alexander: Analysing the fracture behaviour of soft biological membranes	<b>TS.SM02-1.03</b> Cabboi, Alessandro: Unlocking Dynamic Friction: the Frictional Frequency Response	<b>TS.SM03-3.03</b> Matous, Karel: Virtual materials testing
11:30-11:50	<b>TS.FM14-6.04</b> Kametani, Yukinori: Optimal control input for skin friction drag reduction in turbulent channel flow	<b>TS.SM01-1.04</b> deBotton, Gal: Micromechanics motivated modeling of fibrous tissues	<b>TS.SM02-1.04</b> Yang, Jun: Nanotribology Study With T-shape Probe by Atomic Force Microscopy	<b>TS.SM03-3.04</b> Revil-Baudard, Benoit: Modeling plasticity-damage coupling in anisotropic titanium & validation by XCMT
11:50-12:10	<b>TS.FM14-6.05</b> Rouhi, Amirreza: Application of the integral length-scale approximation to Wall Modelled LES	<b>TS.SM01-1.05</b> Marchi, Benjamin: The Importance of Physiologically and Anatomically Representative Ligaments in Knee Models	<b>TS.SM02-1.05</b> Vasu, Thamarai Selvan: Surface loading of layer-substrate system under plane-strain condition with surface effects	<b>TS.SM03-3.05</b> Turteltaub, Sergio: Multiscale traction-separation relations for fiber-reinforced composites
12:10-12:30	<b>TS.FM14-6.06</b> Stevens, Richard: Simulation and modeling of extended wind-farms	<b>TS.SM01-1.06</b> Xu, Xinpeng: Nonlinear elasticity of biopolymer gels under compression	<b>TS.SM02-1.06</b> Aizikovich, Sergey: Analytical solutions of contact problems for bodies with functionally graded coatings	<b>TS.SM03-3.06</b> Welemane, Hélène: A micromechanical damage model for initially anisotropic materials

TS.SM05-6 519b	TS.SM08-3 519a	TS.SM10-6 518c	TS.SM12-1 518b
<b>SM05 - Fracture Mechanics</b> <i>Chair: Leslie Banks-Sills</i>	<b>SM08 - Multi-component Materials and Composites</b> <i>Chair: Xiaodong Wang</i>	<b>SM10 - Sizescale Effects in Materials</b> <i>Chair: Zengtao Chen</i>	<b>SM12 - Nanostructures and MEMS</b> <i>Chair: Alberto Corigliano &amp; Horacio Espinosa</i>
<b>TS.SM05-6.01</b> Begley, Matthew: Cohesive zone modeling of crack kinking out of an interface	<b>TS.SM08-3.01 (INVITED)</b> White, Scott: Self-healing of impact damage in woven composites	<b>TS.SM10-6.01</b> Husser, Edgar: The mechanical behavior of gold-polymer nanocomposites: A numerical study	<b>TS.SM12-1.01 (INVITED)</b> Bertoldi, Katia: Architected materials: Performance through bistability
<b>TS.SM05-6.02</b> Iacobellis, Vincent: Multiscale cohesive zone model of a composite microstructure	<b>TS.SM08-3.02</b> Ochoa, Ozden: An experimental and computational study on a NiTi/polyimide matrix composite interface	<b>TS.SM10-6.02</b> Ponga, Mauricio: Understanding Prismatic Dislocation Loops in Mg by means of large-scale ab-initio simulations	<b>TS.SM12-1.02</b> Xu, Baoxing: Mechanics of evaporation-driven folding of graphene sheets
<b>TS.SM05-6.03</b> Hoefnagels, Johan: Stretchable electronics: solving metal-matrix debonding by removing the matrix	<b>TS.SM08-3.03</b> Wu, Jiangtao: Active composites by multi-material 3d printing	<b>TS.SM10-6.03</b> Klusemann, Benjamin: Study of Intrinsic and Extrinsic Size Effects on Shear Bands in Metallic Glasses	<b>TS.SM12-1.03</b> Chen, Xue: Asymmetric bifurcation of FGM microbeam actuated by thermo-electrical loadings
<b>TS.SM05-6.04</b> Juan, Pierre-Alexandre: Mechanics of finite crack considering interfacial elasticity	<b>TS.SM08-3.04</b> Li, Tiantian: Design of co-continuous composite materials using 3d printing technique	<b>TS.SM10-6.04</b> Linder, Christian: A micromechanical model for strain-induced crystallization in rubber	<b>TS.SM12-1.04</b> Comi, Claudia: Pull-in and nonlinear dynamic behavior of torsional microresonators
<b>TS.SM05-6.05</b> Lu, Wei: Interaction of delamination and electrochemical processes	<b>TS.SM08-3.05</b> Sottos, Nancy: Effects of microstructural variations on transverse crack initiation in composites	<b>TS.SM10-6.05</b> Kordolemis, Alexis: Axially loaded pretwisted nonlinear thin plates: A strain gradient analogy	<b>TS.SM12-1.05</b> Elhebeary, Mohamed: Mechanical Characterization of Materials At Micro/Nanoscale Under Bending
<b>TS.SM05-6.06</b> Massabo, Roberta: A homogenized approach for delamination fracture in laminated structures	<b>TS.SM08-3.06</b> Daniel, Isaac: Yield criteria for matrix and composite materials under static and dynamic loading	<b>TS.SM10-6.06</b> Barrioz, Pierre-Olivier: Experimental assessment of nanovoids growth	<b>TS.SM12-1.06</b> Endo, Daichi: Utilization of Self-Excited Oscillation for Mass Sensing in Liquid

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TS.SM13-1	516a	TS.SM15-3	516b	TS.FS08-1	520f	TS.FS09-2	515bc
<b>SM13 - Plasticity, Viscoplasticity and Creep</b> <i>Chair: Markus Hutter</i>		<b>SM15 - Computational Solid Mechanics</b> <i>Chair: Pierre Suquet</i>		<b>FS08 - Granular Materials and Flows</b> <i>Chair: Eric DiGiuli</i>		<b>FS09 - Foams and Cellular Materials</b> <i>Chair: Stavros Gaitanaros</i>	
<b>TS.SM13-1.01</b> (INVITED) Danas, Kostas: An analytical model for porous single crystals with ellipsoidal voids		<b>TS.SM15-3.01</b> (INVITED) Upadhyay, Manas: Lattice strain evolution during biaxial loading: A fe-fft multiscale modelling approach		<b>TS.FS08-1.01</b> (INVITED) Behringer, Robert: Identifying structure during shear jamming		<b>TS.FS09-2.01</b> (INVITED) Leroy, Valentin: Acoustical properties of liquid foams	
<b>TS.SM13-1.02</b> Ahmed, Benallal: An extension of the guron model involving lode angle		<b>TS.SM15-3.02</b> Knezevic, Marko: Transitioning rate sensitivities across multiple length scales in crystal plasticity		<b>TS.FS08-1.02</b> (INVITED) Lagree, Pierre-Yves: Discharge flow of granular media from silos with lateral orifice: Experiments and simulations		<b>TS.FS09-2.02</b> Jullien, Marie-Caroline: Thermocapillary Forced-drained Foam: Effect of Surface Rheology	
<b>TS.SM13-1.03</b> Balint, Daniel: Rate sensitivity in discrete dislocation plasticity		<b>TS.SM15-3.03</b> Kochmann, Julian: Two-scale, FE-FFT and phase-field-based computational homogenization		<b>TS.FS08-1.03</b> (INVITED) DeGiuli, Eric: A Phase Diagram Unifies Energy Dissipation, Kinetics, and Rheology in Inertial Granular Flows		<b>TS.FS09-2.03</b> Kraiem, Omar: Modelling the crushing behavior of a ceramic brittle foam	
<b>TS.SM13-1.04</b> Bassani, John: Continuum model and simulations for microstructural evolution in deformation processes		<b>TS.SM15-3.04</b> Luscher, Darby: Continuum transport of dislocations during shock response of crystals		<b>TS.FS08-1.04</b> (INVITED) Maza, Diego: About the mass flow rate in silos		<b>TS.FS09-2.04</b> Krüdel, Sebastian: Phononic Microlattices for Ultrasonic Applications	
<b>TS.SM13-1.05</b> Bedzra, Rex: Modelling fiber reinforced composites exhibiting elastoplastic deformation		<b>TS.SM15-3.05</b> Mastorakos, Ioannis: Investigation of single crystal deformation with continuum dislocation dynamics		<b>TS.FS08-1.05</b> Barker, Thomas: Well-posed continuum modelling of granular flow		<b>TS.FS09-2.05</b> Li, Yaning: Auxetic effects induced by re-entrant angle and chirality with large deformation	
<b>TS.SM13-1.06</b> Brach, Stella: Strength properties of nanoporous materials: A molecular dynamics approach				<b>TS.FS08-1.06</b> Bérut, Antoine: Microfluidic granular avalanches: A model for gravity detection in plants cells		<b>TS.FS09-2.06</b> Liebscher, André: Why Laguerre tessellations are good approximations of foams	

**Short talks with Posters**

Talks begin at 13:30 in the rooms listed below, followed by joint poster session at 15:30 in room 220c. The poster board numbers are the last three digits in the paper code, i.e. PO.SM02-1.01.1

**FM03 - Combustion and Flames (co-located with FM05)**

**Room:** 520d

**PO.FM03-2.01.1** | [Mi, XiaoCheng](#): Propagation of Gaseous Detonation Waves in a Spatially Heterogeneous Reactive Medium

**PO.FM03-2.02.2** | [Moreno-Boza, Daniel](#): The Frank-Kamenetskii vortex

**PO.FM03-2.03.3** | [Paquet, Frederick](#): Experimental determination of the height of propellant flames

**PO.FM03-2.04.4** | [Ren, Zhaoxin](#): Ignition and Flame Stabilization in Supersonic Evaporating Fuel Sprays

**PO.FM03-2.05.5** | [Scholle, Markus](#): A Variational Framework for Reactive Flows and Shock Waves

**PO.FM03-2.06.6** | [Teng, Honghui](#): Initiation characteristics of oblique detonation waves in hydrogen-air mixture

**FM04 - Compressible Flow**

**Room:** 522bc

**PO.FM04-1.01.8** | [Alzamora Previtali, Federico](#): Unsteady shock wave reflection from concave surfaces

**PO.FM04-1.02.9** | [Hassanpour, Soroosh](#): Real-Time Solution of One-Dimensional Distributed Parameter Models with Application to DPF

**PO.FM04-1.03.10** | [Keblawi, Amer](#): A Reduced Control-Oriented Model for Quasi One-Dimensional Flow in Area Varying Channels

**PO.FM04-1.04.11** | [Lu, Hongbo](#): Numerical investigation of wall heat transfer influence on shock train in Scramjet isolator

**PO.FM04-1.05.12** | [Stern, Catalina](#): BOS and PSV in a supersonic jet

**FM05 - Convection (co-located with FM03)**

**Room:** 520d

**PO.FM05-1.02.15** | [Dichamp, Jules](#): Analysis of counter-flow convective exchangers using general Graetz modes

**PO.FM05-1.03.16** | [Knupp, Diego](#): Integral transforms in convection-diffusion through convective eigenvalue problems

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**PO.FM05-1.04.17** | Kozlov, Victor: Steady thermal convection in a rotating horizontal annulus

**PO.FM05-1.05.18** | Liu, Chao: Study of heat-transfer coefficient on hypersonic boundary layer flow over a flat

**PO.FM05-1.07.20** | Qu, Qi-Qi: Computation of heat flux in the stagnation point for a cold wall with high speed flow

**PO.FM05-1.08.21** | Shanmugam, Saravanan: Natural convection in a cubical enclosure with opposing active sectors

**PO.FM05-1.09.22** | Villeneuve, Thierry: Three-mode heat transfer simulations in parallelogrammic air enclosures

**PO.FM05-1.10.23** | Wan, Zhenhua: On non-Oberbeck-Boussinesq effects in cessation-led reversals in Rayleigh-Bénard convection

**PO.FM05-1.11.24** | Wetzel, Tim: Subgrid-scale modeling of relaminarizing mixed convection in a vertical channel

**PO.FM05-1.12.25** | Xiao, Yue: Large-scale circulations in an oscillating thermal convection

**PO.FM05-1.13.26** | Xu, Feng: Numerical simulation of a near field plume from a duct

### FM06 - Drops, Bubbles and Multiphase Flows (co-located with FM11)

**Room:** 524bc

**PO.FM06-2.01.28** | Amini, Ghobad: Instability of liquid jets in weak gaseous crossflow

**PO.FM06-2.02.29** | Shukla, Prashant: Study of path instability of a rising oil droplet using PIV

**PO.FM06-2.03.30** | Shum, Ho Cheung: Inertial and viscous forces on dripping-to-jetting transition in aqueous two-phase systems

**PO.FM06-2.04.31** | Son, Gihun: Numerical simulation of colloid evaporation in confined convective coating

**PO.FM06-2.05.32** | Tsai, Pei-Hsun: On drop induced vortex ring and its related oscillation parameter

**PO.FM06-2.06.33** | Tyatyushkin, Alexander: Steady electrorotation of a drop in a constant electric field

**PO.FM06-2.07.34** | Xia, Zhenyan: Investigation on the breakup mechanism of the liquid jet under longitudinal disturbance

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## FM08 - Flow in Thin Films (co-located with FS05)

Room: 521abc

**PO.FM08-1.01.36** | [Aktershev, Sergey](#): Nonlinear Waves in a Falling Film with Phase Transition

**PO.FM08-1.02.37** | [Codrignani, Andrea](#): Viscous dissipation impact on pressure loss in compressible lubricants

**PO.FM08-1.03.38** | [Dagois-Bohy, Simon](#): Stability of a Non-Newtonian Flow down an Incline

**PO.FM08-1.04.39** | [Guion, Alexandre](#): Mesh convergence of moving contact lines in VOF simulations

**PO.FM08-1.05.40** | [Guzanov, Vladimir](#): Rivulets formation during transition to 3D wave regime in isothermal liquid film

**PO.FM08-1.06.41** | [Kvon, Alexandr](#): Statistical characteristics of 3D waves & stationary 3D wave regimes for falling liquid films

**PO.FM08-1.07.42** | [Lavalle, Gianluca](#): Reduced order modelling for flooding onset prediction

**PO.FM08-1.08.43** | [Leivadarou, Evgenia](#): Fluid Shearing for Enhanced Collisions and Accelerated Reactions

**PO.FM08-1.09.44** | [Nazariipoor, Hadi](#): Interface morphology of thin films: electrohydrodynamic vs electrokinetic model

**PO.FM08-1.10.45** | [Villedieu, Philippe](#): Dealing with contact line forces in shallow water models

**PO.FM08-1.11.46** | [Yang, Hao](#): Numerical study of falling film on flexible wall in the presence of insoluble surfactant

**PO.FM08-1.12.47** | [Zhou, Zhi-Qiang](#): Instabilities of liquid-lined flexible tubes with interfacial surfactant

## FM09 - Geophysical and Environmental Fluid Dynamics

Room: 524a

**PO.FM09-1.01.49** | [Gu, Haihua](#): The influence of particles on turbulence intensity in a high Reynolds number ABL flow

**PO.FM09-1.02.50** | [Jin, Ting](#): The influence of large-scale turbulent structure on saltation sand transport

**PO.FM09-1.03.51** | [Kong, Linghai](#): A dynamical study on the north pacific low-latitude western boundary currents

**PO.FM09-1.05.53** | [Soomere, Tarmo](#): Water level extremes at the Baltic Sea coast

**PO.FM09-1.06.54** | [Wu, Zhouhu](#): Theoretical concentration contours equation of sewage mixing zone in rivers and its application

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**FM10 - Low Reynolds Number Flow**
**Room:** 520abc

**PO.FM10-1.01.56** | [Hormozi, Sarah](#): Dispersion of solids in fracturing flows of yield stress fluids

**PO.FM10-1.02.57** | [Lee, Donghwi](#): Effects of cross-sectional aspect ratio of flat plate on flow characteristics

**PO.FM10-1.03.58** | [Masoud, Hassan](#): A reciprocal theorem for convective scalar transfer from a particle in linear flows

**PO.FM10-1.04.59** | [Sumetc, Pavel](#): Flow through the channel coated with charged porous media

**FM11 - Micro- and Nano-fluidics (co-located with FM06)**
**Room:** 524bc

**PO.FM11-1.01.61** | [Chatterjee, Krishnashis](#): Slip flow in collapsing microchannels

**PO.FM11-1.02.62** | [Chen, Han](#): ACEO mixing of fluids in microchannels with asymmetric electrodes

**PO.FM11-1.03.63** | [Hou, Likaj](#): Osmolarity-controlled swelling behaviors of dumbbell double emulsions

**PO.FM11-1.04.64** | [Hsieh, Ming-Che](#): A new flow control method based on multi-resonance valveless micropump

**PO.FM11-1.05.65** | [Hu, Guoqing](#): Inertial lift on a spherical particle in microchannels

**PO.FM11-1.06.66** | [Juric, Damir](#): 3D plug formation in T-junctions & complex cross shaped microchannels

**PO.FM11-1.07.67** | [Lai, Kuan-Ruei](#): Optimal electro-osmotic pumping of a micro-duct with fin structures

**PO.FM11-1.08.68** | [McLaughlin, Richard](#): Geometric Control of Asymmetries in Passive Scalars Advection in Rectangular and Elliptical Pipes

**PO.FM11-1.09.69** | [Mitra, Surjyasish](#): Wetting Dynamics on under-liquid substrates

**PO.FM11-1.10.70** | [Naveira-Cotta, Carolina](#): Direct-inverse analysis of the biodiesel reaction in microreactors

**PO.FM11-1.11.71** | [Shi, Xinghua](#): Rotation-facilitated rapid transport of nanorods in mucosal tissues

**PO.FM11-1.12.72** | [Zheng, Xu](#): Probing the Non-Gaussianity in Confined Diffusion of Nanoparticles

**PO.FM11-1.13.73** | [Zuk, Pawel](#): From rheology to molecular detail - viscosity of suspension of complex molecules

## FM15 - Vortex Dynamics

Room: 520e

**PO.FM15-1.01.75** | [Chang, Chien-Cheng](#): An analysis of vorticity force versus pressure-friction for incompressible flow

**PO.FM15-1.02.76** | [Cuevas, Sergio](#): Free surface vortex instability in magnetically driven liquid metal swirling flow

**PO.FM15-1.03.77** | [Daneshvar, Sina](#): On the influence of end effects for stationary and vibrating circular cylinders

**PO.FM15-1.04.78** | [Elsas, José Hugo](#): Vortex Statistics from Vorticity Local Properties

**PO.FM15-1.05.79** | [Feys, Jan](#): Elliptical instability of the Moore-Saffman model for a trailing wingtip vortex

**PO.FM15-1.06.80** | [Hasegawa, Hideki](#): Characteristics of eigen-vortical-axis lines

**PO.FM15-1.07.81** | [Hu, Ruiheng](#): Far-field wake behind a rotating ellipse at a low Reynolds number

**PO.FM15-1.08.82** | [Itano, Toshihisa](#): Singular-value analyses of symmetric and asymmetric perturbations on a cylindrical vortex sheet

**PO.FM15-1.09.83** | [Krishnamurthy, Vikas](#): Analytical solutions for weakly compressible von Karman vortex streets

**PO.FM15-1.10.84** | [Limacher, Eric](#): Representation of real flows with dynamically equivalent concentrated point vortices

**PO.FM15-1.11.85** | [Liu, Xin](#): Cascade of vortex knots detected by HOMFLYPT polynomial

**PO.FM15-1.12.86** | [Mohseni, Kamran](#): Unsteady Kutta condition and vortex-sheet generation

**PO.FM15-1.13.87** | [Nakayama, Katsuyuki](#): Invariant local flow topology in transition into a vortex and property of its prediction

**PO.FM15-1.14.88** | [Nitsche, Monika](#): Deflection of a vortex dipole by a flat plate

**PO.FM15-1.15.89** | [O'Neil, Kevin](#): A vortex sheet / point vortex dipole

**PO.FM15-1.16.90** | [Paoli, Roberto](#): Hybrid rans-les simulation of wingtip vortices of an airliner

**PO.FM15-1.17.91** | [Velasco Fuentes, Oscar](#): Motion and flow topology of multiple helical vortices

## FM17 - Other Topics in Fluid Mechanics

Room: 519b

**PO.FM17-1.01.93** | [Balapanov, Daniyar](#): One-dimensional flow of heat conductive gas in homobaric approximation

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**PO.FM17-1.02.94** | [Liu, Zhengliang](#): A Discrete Vortex Method for Flapping Foil Power Generator Modelling at Low Reynolds Numbers

**PO.FM17-1.03.95** | [Rinoshika, Hiroka](#): Passive control of flow structures around a low-aspect-ratio cylinder mounted on a flat plate

**PO.FM17-1.05.97** | [Weiss, Adam](#): Inviscid counterflow jets from aligned nozzles

**PO.FM17-1.06.98** | [Zandi, Sahab](#): Flows in channels with vibrating walls

### SM01 - Biomechanics and Biomaterials

**Room:** 516cde

**PO.SM01-2.01.100** | [Mak, Arthur](#): Damage of muscle cells under mechanical and oxidative stresses

**PO.SM01-2.02.101** | [Milewski, Grzegorz](#): Strength analysis of root fractures for endodontically treated lateral teeth

**PO.SM01-2.03.102** | [Nguyen, Khoi](#): Mechanics of fin stiffness in ray-finned fish

**PO.SM01-2.04.103** | [Ni, Yong](#): Toughening and strengthening bioinspired nanolaminates: Size effect and design insight

**PO.SM01-2.05.104** | [Ohara, Hitoshi](#): Evaluation on mechanical properties of 3d flexible meshed gum metal plate implants

**PO.SM01-2.06.105** | [Pak, Wansoo](#): Development and preliminary validation of a 5th percentile female pedestrian finite element model

**PO.SM01-2.07.106** | [Ramírez Torres, Ariel](#): Modeling avascular tumor growth via linear elasticity

**PO.SM01-2.08.107** | [Rodríguez, Marcel](#): Loading-rate dependent mechanical response of the human and porcine knee joints

**PO.SM01-2.09.108** | [Rohani, Seyed Alireza](#): Spatial non-uniformity in the young's modulus of the human eardrum

**PO.SM01-2.10.109** | [Soldatos, Konstantinos](#): Mass-growth at small strain and the human nail

**PO.SM01-2.11.110** | [Voronkova, Eva](#): Assessment of material and geometrical parameters influence on IOP changes after injections

**PO.SM01-2.12.111** | [Yuan, Hongyan](#): A cell migration model integrating mechanical stress with biochemical signals

**PO.SM01-2.13.112** | [Zhang, Lei](#): A study on imperfection sensitivity of pressured buckling of spherical virus shells

## SM02 - Contact and Friction (co-located with SM11)

Room: 515a

**PO.SM02-1.01.114** | [Adamowicz, Adam](#): Numerical modeling of the coupling between the temperature and velocity in braking systems

**PO.SM02-1.02.115** | [Bartosh, Ilona](#): A new formulation for re-centering friction-based isolation systems

**PO.SM02-1.03.116** | [Fedotenkov, Grigory](#): Elastic Semi-space Impacted with Elastic Filled Shell

**PO.SM02-1.04.117** | [Jiang, Yuxi](#): The Dual Domain Decomposition Parallel Contact Algorithm in CHAP3D Code

**PO.SM02-1.05.118** | [Kuciej, Michal](#): Nonlinear analytical – numerical models of solving frictional heat problems

**PO.SM02-1.06.119** | [Nuzhdin, Kirill](#): Modelling of external dynamic of the friction engagement

## SM03 - Damage Mechanics (co-located with FS07)

Room: 518a

**PO.SM03-2.01.121** | [Behdinin, Kamran](#): Effect of Mg impurities on sapphire's strength: a multiscale simulation approach

**PO.SM03-2.02.122** | [Mishra, Ashish](#): A fully nonlinear model of a damaged unidirectional metal matrix composite

**PO.SM03-2.03.123** | [Morada, Ghodratollah](#): Numerical Analysis on Compression Failure Mechanisms of Impacted Ncf Reinforced Composites

**PO.SM03-2.04.124** | [Pathak, Nikky](#): Role of the microstructure on sheared edge fracture of advanced high strength steel

**PO.SM03-2.05.125** | [Ry, Maciej](#): Total Energy Equivalence in Constitutive Modelling of Multidissipative Materials

**PO.SM03-2.06.126** | [Saeedi, Navid](#): Damage-plasticity simulation of a premature failure in FRP strengthened RC beams

**PO.SM03-2.07.127** | [Simons, Erik](#): Mesh-independent damage-plasticity model for ceramics in ballistic protection

**PO.SM03-2.08.128** | [Wei, Yueguang](#): Characterization of damage and failure for nanocrystalline materials

**PO.SM03-2.09.129** | [Yang, Li](#): Quantitative Assessment of Failure in Tbc's Based on Frequency Spectrum of Acoustic Emission

**PO.SM03-2.10.130** | [Yu, Feng](#): Stress triaxiality effect on damage evolution of high-strength steels

**PO.SM03-2.11.131** | [Zhang, Yi](#): Effects of compressive loading history on mechanical properties of HDPE

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## SM08 - Multi-component Materials and Composites

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**PO.SM08-1.01.133** | [Abderrafai, Yahya](#): Design and 3D printing of polymer/ceramic composite structures

**PO.SM08-1.02.134** | [Abedi, Mehrnoosh](#): Damping of laminated plates: boundary condition and lamination sequence effects

**PO.SM08-1.03.135** | [Arif, Abul-Fazal](#): Thermal conductivity estimation of nanocomposites with randomly distributed inclusions

**PO.SM08-1.04.136** | [Barboura, Salma](#): Analytical Inclusion Green Operators in Transversally Isotropic Media

**PO.SM08-1.05.137** | [Chaudhry, Salman](#): High strain rate response of carbon nanotubes based elastomer composites

**PO.SM08-1.06.138** | [Constantin, Nicolae](#): Impact Force History Patterns on Sandwiches Versus Post-impact Behaviour

**PO.SM08-1.07.139** | [Fazili, Amin](#): Vibration of doubly tapered laminated composite beams by hierarchical FEM

**PO.SM08-1.08.140** | [Gao, Yuanwen](#): Electromechanical Behaviors of Multi-filament Twisted Superconducting Strand

**PO.SM08-1.09.141** | [Kaabi, Abderrahmen](#): Effect of ATH particle size on properties of vinyl ester matrix composites

**PO.SM08-1.10.142** | [Karamian-Surville, Philippe](#): Morphological parameters impact on the properties of 3D composite materials

**PO.SM08-1.11.143** | [Maruta, Tomohiro](#): Study on Fatigue Characteristics of Honeycomb Sandwich Panels

**PO.SM08-1.12.144** | [Mejak, George](#): Extreme elastic anisotropy of composites with periodic structure

**PO.SM08-1.13.145** | [Monetto, Ilaria](#): RVE size estimates for elastic matrices with spherically multi-layer inclusions

**PO.SM08-1.14.146** | [Ouadday, Rim](#): Effect of ATH concentration on properties of vinylester/ATH composite

**PO.SM08-1.15.147** | [Rahbar, Nima](#): Analytical studies on lamellar-structured composites made by freeze-casting

**PO.SM08-1.16.148** | [Serpilli, Michele](#): Magneto-electro-thermo-elastic interface models: an asymptotic approach

**PO.SM08-1.17.149** | [Ustrzycka, Aneta](#): Assessment of the strength of nanocomposites based on interface bonding analysis

**PO.SM08-1.18.150** | [Xiong, Jian](#): Mechanical behaviors of carbon fiber composite three dimensional lattice grid structures

**PO.SM08-1.19.151** | [Xu, Chao](#): Three-dimensional direct-write printing of metallic microstructures

**PO.SM08-1.20.152** | [Zhang, Qiancheng](#): Vibration and damping characteristics of sandwich beam with fiber felt core

**PO.SM08-1.21.153** | [Zhang, Zhijia](#): Free vibration analysis of sandwich beams with foam-corrugated core

**PO.SM08-1.22.154** | [Zhu, Hanxing](#): Composites with enhanced conductivity and Young's modulus and desired Poisson's ratio

#### SM11 - Multibody and Vehicle Dynamics (co-located with SM02)

**Room:** 515a

**PO.SM11-1.01.156** | [Foster, John](#): A variationally consistent approach to constrained motion

**PO.SM11-1.02.157** | [Kita, Eisuke](#): Simulation of a vehicle separated from vehicle platoon

**PO.SM11-1.03.158** | [Lu, Daixing](#): Solver Coupling with Algebraic Constraints: An Index-2 Co-Simulation Approach

**PO.SM11-1.04.159** | [Luo, Kai](#): Parametric study on flexible multibody dynamics via model reduction

**PO.SM11-1.06.161** | [Shamolin, Maxim V.](#): On integrability of motion equations of the spatial pendulum in a medium flow

**PO.SM11-1.07.162** | [Spinello, Davide](#): Peristaltic wave locomotion with a millipede inspired mechanism

**PO.SM11-1.08.163** | [Yong, Jiawang](#): Design and validation of an electric booster brake system with hardware-in-the-loop simulation

**PO.SM11-1.09.164** | [Zhou, Wei](#): Deformable-rigid switch in computational simulation of bus rollover test

#### SM12 - Nanostructures and MEMS

**Room:** 518b

**PO.SM12-1.01.166** | [Chen, Cheng](#): Effects of lateral strain and corner geometry on self-rolling of nanomembranes

**PO.SM12-1.02.167** | [Damasceno, Daniela](#): Mechanical behavior of graphene sheet using atomic-scale finite element method

**PO.SM12-1.03.168** | [Effa, David](#): Analysis of thermal noise in frequency-modulated gyroscopes

**PO.SM12-1.04.169** | [Gilchrist, Michael](#): Polymer injection molding of micro/nano structured devices

**PO.SM12-1.05.170** | [Guz, Igor](#): Effect of a special reinforcement on the nanocomposite properties

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**PO.SM12-1.06.171** | [Kang, Wonmo](#): Study of the electromechanical behavior of metals using a microdevice method

**PO.SM12-1.07.172** | [Wang, Binglei](#): Size-dependent nonlinear behavior for electrostatic actuated NEMS with Casimir force

**PO.SM12-1.08.173** | [Wang, Chaoying](#): Effects of dislocation on the performance of Si anode in Na and Mg-ion batteries

**PO.SM12-1.09.174** | [Wu, Bingjie](#): Effect of an applied force on ripple formation of free graphene ribbons

### SM13 - Plasticity, Viscoplasticity and Creep

**Room:** 516a

**PO.SM13-1.01.176** | [Abedini, Armin](#): Constitutive response of a rare-earth magnesium alloy sheet in monotonic and cyclic loadings

**PO.SM13-1.02.177** | [Borokinni, Adebowale](#): A theory of strain gradient-divergence plasticity

**PO.SM13-1.04.179** | [Burns, Timothy](#): Estimation of shear stress in machining using the temperature distribution on the tool face

**PO.SM13-1.05.180** | [Faucheux, Pierre](#): Modeling of shot peen-forming operations using eigenstrains

**PO.SM13-1.06.181** | [Guo, Xiang](#): Dependence of strength and ductility of coarse-grained metals on the nanotwin volume fraction

**PO.SM13-1.07.182** | [Hanoglu, Umut](#): Simulation of hot shape rolling by using plastic material response

**PO.SM13-1.08.183** | [Li, Zhen](#): A Novel Material Model for the Large-Scale Simulation of Temperature Dependent Inelasticity

**PO.SM13-1.09.184** | [Lomakin, Evgeny](#): Plastic deformation of materials with stress state dependent properties

**PO.SM13-1.10.185** | [Minton, Jeremy](#): A slab model for ring rolling

**PO.SM13-1.11.186** | [Nakatani, Akihiro](#): Analysis of criterion for kink banding in layered solids

**PO.SM13-1.12.187** | [Petersmann, Manuel](#): A mean-field model for trip - algorithms and parameter identification

**PO.SM13-1.13.188** | [Scherzinger, William](#): Yield surface effects on stability and failure

**PO.SM13-1.14.189** | [Soare, Monica](#): Microstructural effects in nickel-based alloys damage during plastic loading

**PO.SM13-1.15.190** | [Song, Weidong](#): A crystal plasticity modeling for plane strain deformation of pure magnesium

**PO.SM13-1.16.191** | [Szymczak, Tadeusz](#): An Influence of Cyclic Loading on Stress Component Reduction in the Transversal Direction

**PO.SM13-1.17.192** | Teltayev, Bagdat: Experimental research of creep, recovery and fracture processes of asphalt concrete under tension

### SM15 - Computational Solid Mechanics

**Room:** 516b

**PO.SM15-1.01.194** | Batoz, Jean-Louis: On the mechanics of bio-inspired stiffened shell structures

**PO.SM15-1.02.195** | Belov, Aleksander: Computer modeling of dynamics of 3-D elastic solids with coupled fields

**PO.SM15-1.03.196** | Cheng, Zhuang: a study on particle stress evolution in biaxial test

**PO.SM15-1.04.197** | Ipatov, Aleksandr: Study of wave propagation in poroviscoelastic solid using boundary element approach

**PO.SM15-1.05.198** | Ke, Hang: Phase field modeling of additive manufacturing in metals

**PO.SM15-1.06.199** | Liu, Ning: Peridynamic Modeling of Beam Vibration and Impact Damage Concerning Different Deformation Scale

**PO.SM15-1.07.200** | Lund, Erik: Gradient based post-buckling optimization of laminates using Koiter's method

**PO.SM15-1.08.201** | Ma, Hang: Formulation of boundary integrals with eigenstrains in 3-D eigenstrain bie

**PO.SM15-1.09.202** | Markov, Ivan: A Laplace domain BEM formulation for dynamic problems of anisotropic elasticity

**PO.SM15-1.10.203** | Molavi Nojumi, Mohamad: Evaluation of modified finite elements with spatially varying elastic parameters for FGMs

**PO.SM15-1.11.204** | Pejhan, Khashayar: Load transfer analysis of a vehicle component with  $u^*$  index theory

**PO.SM15-1.12.205** | Rezaei Mianroodi, Jaber: Comparison of methods for discontinuous and smooth inhomogeneous elastostatics

**PO.SM15-1.13.206** | Sadeghifar, Morteza: FE modeling and optimization of cutting temperature in orthogonal turning

**PO.SM15-1.14.207** | Wang, Jizeng: A wavelet-based method with arbitrary high order of accuracy for nonlinear problems in mechanics

**PO.SM15-1.15.208** | Wu, Wenwang: Stress Fields Induced by Dislocation Loops in Isotropic Cubic Film-substrate System

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**PO.SM16-1.02.212** | [Ben Lassoued, Mohamed Amin](#): Vibration energy localisation in inhomogenous beam structure

**PO.SM16-1.03.213** | [Bognash, Mohamed](#): Mass anomaly and random rate fluctuation effects on vibratory gyroscope dynamics

**PO.SM16-1.04.214** | [Dourado Guerra Silva, Arinan](#): Uncertainty analysis of rotating machines using fuzzy logic approach

**PO.SM16-1.05.215** | [Farid, Mehrdad](#): Nonlinear vibrations of FGM shallow shells subjected to random excitation in thermal environment

**PO.SM16-1.06.216** | [Hernandez, Eric](#): Equivalent viscous damping of a cylinder moving transversely through sand: Experimental Results

**PO.SM16-1.07.217** | [Mena, Mohamed](#): Free vibration of spherical shells using a hybrid finite element method

**PO.SM16-1.08.218** | [Rafiee, Mohammad](#): Vibration of rotating multiscale nanocomposite cantilever beams

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**PO.SM16-1.11.221** | [Tarlakovskiy, Vladimir](#): Non-stationary coupled electromagnetic elastic oscillations of spherical shells

**PO.SM16-1.12.222** | [Yu, Haidong](#): Dynamic behavior of gripper cylinder in TBM with variable stiffness

**PO.SM16-1.13.223** | [Zhang, Wei](#): Multi-pulse chaotic motions of equivalent circular cylindrical shell

**PO.SM16-1.14.224** | [Zhang, Yi](#): Damage localization for operational modal analysis via random decrement technique

**PO.SM16-1.15.225** | [Zhou, Chunyan](#): Micro-dynamic characterization of modal parameters for a honeycomb plate structure

**PO.SM16-1.16.226** | [Zhu, Jiang](#): Robust, smooth and fast ASMC - applications to robot manipulators

## FS05 - Porous Media (co-located with FM08)

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**PO.FS05-1.02.229** | [Budyn, Elisa](#): Bone healing in Live Allograft Biological Systems

**PO.FS05-1.03.230** | [Karmakar, Timir](#): Lifting a large object from an anisotropic porous bed

**PO.FS05-1.04.231** | [Lasseux, Didier](#): Macroscopic modeling of slightly compressible gas slip flow in homogeneous porous media

**PO.FS05-1.05.232** | [Li, Xiying](#): Controllable Capillary Flow and Direct Oil Recovery in Carbon Nanotube Sponges

**PO.FS05-1.06.233** | [Lundström, Staffan](#): Stereoscopic particle image velocimetry for the study of turbulent flow in a packed bed of spheres

**PO.FS05-1.07.234** | [Zhang, Chi](#): Hygromechanical behavior of hemicellulose and s2 cell wall layer of wood

**PO.FS05-1.08.235** | [Zu, Yingqing](#): Pore scale modeling of CO<sub>2</sub> migration in porous rocks under conditions of saline aquifers

#### FS06 - Fluid Structure Interactions (co-located with FS09)

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**PO.FS06-1.02.238** | [Blanchard, Antoine](#): Resonance capture in vortex-induced vibration of a cylinder with a rotator

**PO.FS06-1.04.240** | [Chen, Weimin](#): Multi-Frequency Vortex-Induced Vibrations of a long Cylinder in Shear Flow

**PO.FS06-1.05.241** | [Frey, Raphael](#): Modelling and Experimental Characterization of Diaphragm Pumps and Tubing

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**PO.FS06-1.16.252** | [Vedeneev, Vasily](#): Nonlinear panel flutter at variable transonic flow speed

**PO.FS06-1.17.253** | [Xing, Jing](#): Mixed FE-SP method for nonlinear structure-water interactions with freak waves

#### FS07 - Actuating and Smart Materials (co-located with SM03)

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**PO.FS07-1.04.258** | [Hobeck, Jared](#): Impedance Drift due to Thermal Cycling of Macro Fiber Composites

**PO.FS07-1.05.259** | [Hongqiu, Wei](#): Fabrication and characterization of epoxy based shape memory nano-composites

**PO.FS07-1.06.260** | [Tan, Yimin](#): Performance improvement of idm motor using nonlinear property of material

**PO.FS07-1.07.261** | [Wang, Yin](#): Application of an IHB method to the vibration of a dielectric elastomer balloon

**PO.FS07-1.08.262** | [Xia, Xiaodong](#): Nonuniform domain switching for interfacial crack subject to two-parameter crack tip fields

**PO.FS07-1.09.263** | [Xu, Yangguang](#): The magneto-induced stress relaxation of magnetorheological polymer gels

**PO.FS07-1.10.264** | [Yang, Zhengbao](#): A distributed-parameter model of a compressive-mode energy harvester

#### FS08 - Granular Materials and Flows

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**PO.FS08-1.01.266** | [Alvarez, Carlos](#): Density waves in the gravitational flow of grains in narrow pipes

**PO.FS08-1.02.267** | [Da Silva Maciel, Lucas](#): Wall-media interactions in vibrationally fluidized granular flows

**PO.FS08-1.03.268** | Dalloz-Dubrujeaud, Blanche: Discharge Flow of a Granular Media from a Silo: Effect of the Packing Fraction and of the Geometry

**PO.FS08-1.04.269** | Favier, Adeline: Particle stiffness influence on granular rheology

**PO.FS08-1.05.270** | Haghighi, Mohammad Reza: The role of the particle stress in the simulation of fluidized beds

**PO.FS08-1.06.271** | Huang, Hao-Jie: Numerical Research on Wind-blown Sand with Semi-buried Checkerboard Sand Barriers Belt

**PO.FS08-1.08.272** | Lattanzi, Aaron: A constant heat flux boundary condition for CFD-DEM simulations

**PO.FS08-1.09.273** | Nonoyama, Hideto: Post-Failure Analysis of Slope by Smoothed Particle Hydrodynamics

**PO.FS08-1.10.274** | Polezhaev, Denis: Ripple formation in a librating cylinder filled with fluid

**PO.FS08-1.11.275** | Sirmas, Nick: Continuum description of Sirmas-Radulescu shock wave instability in dissipative gases

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### FS09 - Foams and Cellular Materials (co-located with FS06)

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**PO.FS09-2.02.279** | Sahraoui, Sohbi: Fractional derivatives model to predict high frequency moduli of acoustic foams

**PO.FS09-2.03.280** | Wyatt, Hayley: Optimising Material Density of Cellular Bodies in High Elastic Deformation

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<b>TS.FM04-2.03</b>	Livescu, Daniel: Subgrid scale analysis of turbulence after the shock-turbulence interaction
<b>TS.FM04-2.04</b>	Sen, Oishik: Multiscale modeling using a Dynamic Kriging-based metamodeling technique
<b>TS.FM04-2.05</b>	Paolucci, Samuel: Shock structure in hypersonic flows
<b>TS.FM04-2.06</b>	De Brauer, Alexia: Compressible multimaterial flows

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<b>TS.FM05-1.01 (INVITED)</b>	Chilla, Francesca: Lagrangian Measurements in Turbulent Thermal Convection
<b>TS.FM05-1.02 (INVITED)</b>	Shishkina, Olga: Heat and momentum transport in horizontal convection
<b>TS.FM05-1.03 (INVITED)</b>	Tasaka, Yuji: Two-dimensional oscillations in MHD Rayleigh-Benard convection
<b>TS.FM05-1.04 (INVITED)</b>	Zhong, Jin-Qiang: The large-scale circulation dynamics in rotating Rayleigh-Benard convection
<b>TS.FM05-1.05</b>	Xia, Ke-Qing: Turbulent thermal convection over rough surfaces with varying roughness size
<b>TS.FM05-1.06</b>	Wynn, Andrew: Optimal Bounds on Energy Dissipation for Stress-driven Shear Flows

TS.FM09-1	524a
<b>FM09 - Geophysical and Environmental Fluid Dynamics</b> <i>Chair: Colm-cille Caulfield</i>	
<b>TS.FM09-1.01 (INVITED)</b>	Linden, Paul: Experiments on stratified turbulence and mixing in an inclined duct
<b>TS.FM09-1.02</b>	Salehipour, Hesam: Turbulent mixing in strongly stratified shear flows
<b>TS.FM09-1.03</b>	Delache, Alexandre: Isotropy restored at small scales in stratified turbulence: Thorpe's scale vs Ozmidov's scale
<b>TS.FM09-1.04</b>	Arratia, Cristobal: Transient growth on time-dependent strongly-stratified flows
<b>TS.FM09-1.05</b>	Kaminski, Alexis: Nonlinear evolution of optimal perturbations to strongly stratified shear layers
<b>TS.FM09-1.06</b>	Yang, Bernard: High frequency observations of under-ice convection

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<b>FM10 - Low Reynolds Number Flow</b> <i>Chair: Elisabeth Guazzelli</i>	
<b>TS.FM10-1.01</b>	Stone, Howard: Hydrodynamics of a hot particle in a viscous fluid
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<b>TS.FM10-1.03</b>	Duprat, Camille: Complex Trajectories of Confined Fibers in Viscous Flows
<b>TS.FM10-1.04</b>	Mitchell, William: Generalized traction integral equations and viscous erosion
<b>TS.FM10-1.05 (INVITED)</b>	Shelley, Michael: Fluid-structure interactions in cellular biophysics
<b>TS.FM10-1.06 (INVITED)</b>	Singh, Pushpendra: Fluid dynamics of hydrophilous pollination in Ruppia (widgeon grass)

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<b>TS.FM11-1.06</b> Neild, Adrian: Ultrasonic Force Potential Wells for Trapping Arrays of Single Cells - One Cell Per Well (OCPW)	<b>TS.FM15-1.06</b> Yang, Wenchao: Two-dimensional wakes of an oscillating cylinder at low Reynolds number	<b>TS.SM01-2.06</b> Bao, Gang: Force-induced internalization of magnetic nanoparticles for drug delivery and cell tracking	

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<b>TS.SM05-7.06</b> Banks-Sills, Leslie: Reassessment of the virtual crack closure technique for interface cracks		<b>TS.SM08-4.06</b> Hohe, Jörg: Modelling of material uncertainties in long fibre reinforced thermoplastics		<b>TS.SM12-2.06</b> Ke, Changhong: Nanomechanical characterization of boron nitride and carbon nanotubes polymer interfaces		<b>TS.SM13-2.06</b> Kondo, Djimedo: Ductile porous materials with a Mohr-Coulomb matrix: Theory and numerical bounds	

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<b>TS.SM15-4.03</b> Frydrych, Karol: Modelling Microstructure Evolution in SPD Processes in the Framework of Crystal Plasticity Theory		<b>TS.SM16-1.03</b> Brack, Tobias: Monitoring the Viscoelastic Behavior of Complex Fluids Using Multi-Frequency Resonance Tracking		<b>TS.FS05-1.03 (INVITED)</b> Pelleng, Roland: The bottom-up modeling approach to cement paste		<b>TS.FS07-1.03</b> Bilal, Osama: Phononic transistors and mechanical calculators	
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<b>TS.FS08-2.01</b>	Turnbull, Barbara: Ice as a granular material
<b>TS.FS08-2.02</b>	Vidal, Valérie: Gas-induced fluidization in water-saturated sands
<b>TS.FS08-2.03</b>	Clavaud, Cécile: Anomalous Low Friction Coefficient In Dense Suspensions
<b>TS.FS08-2.04</b>	Dorostkar, Omid: CFD-DEM study of saturated granular media; applications to fault gouge
<b>TS.FS08-2.05</b>	Forterre, Yoel: Impact in dense suspensions: Key role of pore-pressure
<b>TS.FS08-2.06</b>	Henann, David: Size dependence of the yield threshold in dense granular materials

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<b>FS09 - Foams and Cellular Materials</b> <i>Chair: Damiano Pasini</i>	
<b>TS.FS09-3.01 (INVITED)</b>	Lorenceau, Elise: Imbibition of dry aqueous foams by oil
<b>TS.FS09-3.02</b>	Liu, Lu: Failure mechanisms in AISi10Mg lattices via in-situ compression tomography
<b>TS.FS09-3.03</b>	Ryvkin, Michael: Brittle fracture of hierarchical self-similar honeycombs
<b>TS.FS09-3.04</b>	Wang, Dong-Wei: Sound transmission through composite sandwich plate with pyramidal truss cores
<b>TS.FS09-3.05</b>	Xu, Hang: Stiff and strong Octet lattice with tunable coefficient of thermal expansion
<b>TS.FS09-3.06</b>	Zheng, Zhijun: Dynamic behavior and crashworthiness design of graded cellular structures

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<b>FM04 - Compressible Flow</b> <i>Chair: David Frost</i>		<b>FM05 - Convection</b> <i>Chair: Joerg Schumacher</i>		<b>FM07 - Flow Instability and Transition</b> <i>Chair: Xiaohua Wu</i>		<b>FM09 - Geophysical and Environmental Fluid Dynamics</b> <i>Chair: Paul Billant</i>	
<b>TS.FM04-3.01</b> (INVITED) Jacquin, Laurent: Transonic airfoil buffet: A decade of research at ONERA		<b>TS.FM05-2.01</b> Schmeling, Daniel: On the influence of the aspect ratio on structure formation in turbulent mixed convection		<b>TS.FM07-5.01</b> Egorov, Ivan: Direct numerical simulations of laminar-turbulent transition in hypersonic flows over flat plate		<b>TS.FM09-2.01</b> (INVITED) Dauxois, Thierry: Energy Cascade in Internal Wave Attractors	
<b>TS.FM04-3.02</b> Wang, Tiejin: Experiment on nonlinear growth of supersonic mixing layers		<b>TS.FM05-2.02</b> Arakeri, Jaywant: Light propagation through axially homogeneous buoyancy driven turbulence		<b>TS.FM07-5.02</b> Jallas, Damien: Wake deviation of a flapping foil: A symmetry-breaking bifurcation		<b>TS.FM09-2.02</b> (INVITED) Heijst, Gertjan: Tidal flushing of semi-enclosed basins	
<b>TS.FM04-3.03</b> Tenaud, Christian: Shedding Intermittency in a Shock Wave-Laminar Boundary Layer Interaction		<b>TS.FM05-2.03</b> Floryan, J. M.: Flow in a dual heated channel		<b>TS.FM07-5.03</b> Kozlov, Victor: Longitudinal vortices and their secondary instability on swept wing		<b>TS.FM09-2.03</b> Scase, Matthew: Suppression of the Rayleigh-Taylor Instability by Rotation	
<b>TS.FM04-3.04</b> Timofeev, Evgeny: Regular-to-Mach reflection transition on curved surfaces		<b>TS.FM05-2.04</b> Tilgner, Andreas: High Rayleigh number convection with double diffusive fingers		<b>TS.FM07-5.04</b> Lusseyran, François: Nonlinear temporal dynamics of axisymmetric wavepackets in subsonic jets		<b>TS.FM09-2.04</b> Billant, Paul: Instabilities of baroclinic vortices in stratified-rotating fluids	
<b>TS.FM04-3.05</b> Grogan, Kevin: Detailed simulations of shock boundary layer interaction in shock tube experiments		<b>TS.FM05-2.05</b> Tong, Penger: Boundary layer fluctuations and their effects on mean and variance temperature profiles		<b>TS.FM07-5.05</b> Poncet, Sébastien: DNS of turbulent flows inside a simplified stage of high-pressure compressor		<b>TS.FM09-2.05</b> Reinaud, Jean: Interaction of a surface Quasi-Geostrophic buoyancy strip and an internal vortex	

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	TS.FM10-2 520abc	TS.FM11-2 524bc	TS.FM15-2 520e	TS.SM01-3 516cde
	<b>FM10 - Low Reynolds Number Flow</b> <i>Chair: Jeff Morris</i>	<b>FM11 - Micro- and Nano-fluidics</b> <i>Chair: Carlo Casciola</i>	<b>FM15 - Vortex Dynamics</b> <i>Chair: Yasuhide Fukumoto</i>	<b>SM01 - Biomechanics and Biomaterials</b> <i>Chair: Jim Johnson</i>
08:30-08:50	<b>TS.FM10-2.01 (INVITED)</b> Lemaire, Elisabeth: Rheology of non-brownian suspensions: The role of inter-particle contact forces	<b>TS.FM11-2.01</b> Pierini, Filippo: Particles double layer evaluation by atomic force microscopy-optical tweezers	<b>TS.FM15-2.01</b> Stremler, Mark: Point vortex models of exotic laminar vortex streets	<b>TS.SM01-3.01 (INVITED)</b> Weitz, Dave: Universal correlation between stiffness and volume for cells
08:50-09:10	<b>TS.FM10-2.02</b> Wilson, Helen: Simulations of a heavy ball falling through a sheared suspension	<b>TS.FM11-2.02 (INVITED)</b> Kiani, Mohammad: A biomimetic microfluid assay for rapid screening of anti-inflammatory drugs	<b>TS.FM15-2.02</b> Blackmore, Denis: Magnetic point vortex dynamics in the plane	<b>TS.SM01-3.02</b> Rubin, Miles: An eulerian formulation of soft tissue growth
09:10-09:30	<b>TS.FM10-2.03</b> Guazzelli, Elisabeth: Rheology of dense Newtonian and viscoplastic suspensions	<b>TS.FM11-2.03</b> Hao, Pengfei: Growth and Departure of Condensation Microdroplets on Superhydrophobic Surfaces	<b>TS.FM15-2.03</b> Brøns, Morten: Topology of vortex creation and merging: Wakes and multi-Gaussian models	<b>TS.SM01-3.03</b> Espinosa, Horacio: Cell-selective electroporation for novel single-cell applications
09:30-09:50	<b>TS.FM10-2.04</b> Wierschem, Andreas: Shear-induced granular motion on regular substrates at low particle Reynolds numbers	<b>TS.FM11-2.04</b> Sun, Xiaoze: Experimentally observed flows in inkjet-printed liquid rivulets	<b>TS.FM15-2.04</b> Rosi, Giuseppe: Entrainment in non-stationary flows	<b>TS.SM01-3.04</b> Crone, Wendy: Influence of Microscale Patterning and Substrate Stiffness on Cardiomyocyte Maturation
09:50-10:10	<b>TS.FM10-2.05</b> Inasawa, Ayumu: Experimental study on drag reduction due to periodically heated wall	<b>TS.FM11-2.05</b> Kahouadji, Lyes: Massively parallel direct numerical simulation of 3D jet flows	<b>TS.FM15-2.05</b> Franck, Jennifer: Vortex and wake interactions of multiple oscillating foils for energy harvesting	<b>TS.SM01-3.05</b> Zündel, Manuel: Mechanical considerations on traction force microscopy

TS.SM02-3 515a	TS.SM05-8 519b	TS.SM11-1 517d	TS.SM12-3 518b
<b>SM02 - Contact and Friction</b> <i>Chair: Stanislaw Stupkiewicz</i>	<b>SM05 - Fracture Mechanics</b> <i>Chair: Ravi-Chandar Krishnaswamy</i>	<b>SM11 - Multibody and Vehicle Dynamics</b> <i>Chair: Niels Pedersen</i>	<b>SM12 - Nanostructures and MEMS</b> <i>Chair: Claudia Comi</i>
<b>TS.SM02-3.01</b> (INVITED) Yastrebov, Vladislav: Contact between rough surfaces: mechanical and transport phenomena at small scales	<b>TS.SM05-8.01</b> (INVITED) Narasimhan, R.: Brittle-ductile transition in notched nanoscale metallic glass specimens	<b>TS.SM11-1.01</b> (INVITED) Bruls, Olivier: Modelling of multibody systems in the local frame	<b>TS.SM12-3.01</b> (INVITED) Misseroni, Diego: Serpentine motion through a frictionless channel
<b>TS.SM02-3.02</b> Goryacheva, Irina: The system of indenters sliding over the viscoelastic half-space	<b>TS.SM05-8.02</b> Korkolis, Yannis: Failure of an austenitic stainless steel under linear and non-linear loading paths	<b>TS.SM11-1.02</b> Avedisov, Sergei: Analysis of vehicle handling for front wheel drive and rear wheel drive vehicles	<b>TS.SM12-3.02</b> Lei, Xiao-Wen: Complex energy landscapes of carbon nanotubes with defects
<b>TS.SM02-3.03</b> Proppe, Carsten: Multiscale modelling of dynamical systems with friction between randomly rough surfaces	<b>TS.SM05-8.03</b> Liu, Yinghua: T-stress and mismatch constraint for a blunted creep crack	<b>TS.SM11-1.03</b> Berbyuk, Viktor: Global sensitivity analysis and multiobjective optimization of bogie suspension	<b>TS.SM12-3.03</b> Lengiewicz, Jakub: Two-Domain Model of Volumetric Actuators
<b>TS.SM02-3.04</b> Diop, Thierno: Frictional Contact, Numerical Approximation and Algorithms	<b>TS.SM05-8.04</b> Sartori, Cédric: Micromechanical Model for Ductile Porous Material under Dynamic Loading	<b>TS.SM11-1.04</b> Eberhard, Peter: Coupling of Mechanical and Optical Methods for Simulations and Measurements	<b>TS.SM12-3.04</b> Li, Teng: Anomalous scaling law of mechanical properties of cellulose nanopaper
<b>TS.SM02-3.05</b> Perez Rafols, Francesc: An LCP based approach for the contact mechanics of elastic half spaces	<b>TS.SM05-8.05</b> Rodríguez-Martínez, José: Multiple necking during biaxial loading of thermo-viscoplastic plates	<b>TS.SM11-1.05</b> Zhao, Xiaonan: Nonlinear rotor motion: Influence of thrust bearings on subsynchronous oscillations	<b>TS.SM12-3.05</b> Liechti, Kenneth: Graphene interactions by displacement-controlled nanoindentation

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	TS.SM13-3 516a	TS.SM15-5 516b	TS.SM16-2 518c	TS.FS05-2 521abc
	<b>SM13 - Plasticity, Viscoplasticity and Creep</b> <i>Chair: Kostas Danas</i>	<b>SM15 - Computational Solid Mechanics</b> <i>Chair: Bob Svendsen</i>	<b>SM16 - Vibrations and Control of Structures</b> <i>Chair: Sam Asokanathan</i>	<b>FS05 - Porous Media</b> <i>Chair: Christopher DeGroot</i>
08:30-08:50	<b>TS.SM13-3.01 (INVITED)</b> Hütter, Markus: Stress-Tensor Expression in Two-Temperature Models for the Aging and Yielding of Glasses	<b>TS.SM15-5.01</b> Dornisch, Wolfgang: Dual basis functions for isogeometric solid mechanics	<b>TS.SM16-2.01 (INVITED)</b> Inman, Daniel: Metastructures for vibration suppression – Presented by Jared Hobeck	<b>TS.FS05-2.01</b> Carmeliet, Jan: Multiscale investigation of imbibition, drainage and drying in macroporous media
08:50-09:10	<b>TS.SM13-3.02</b> Le Graverend, Jean-Briac: 3D directional coarsening in single crystal superalloys for multiaxial applications	<b>TS.SM15-5.02</b> Papoulia, Katerina: Non-differentiable energy minimization for cohesive fracture	<b>TS.SM16-2.02</b> Lu, Zeqi: Mechanical Vibration Isolation with Stochastic Resonance	<b>TS.FS05-2.02</b> Chen, Mingyang: A multi-scale study on adsorption induced deformation of hybrid porous materials
09:10-09:30	<b>TS.SM13-3.03</b> Li, Jianjun: A theoretical model revealing strong strain hardening in gradient nano-grained materials	<b>TS.SM15-5.03</b> Paggi, Marco: A computational framework for nonlinear contact between deformable excitable biological cells	<b>TS.SM16-2.03</b> Mesh, Mikhail: Efficient algorithm for a nonlinear transient vibration problem	<b>TS.FS05-2.03</b> Hellmich, Christian: Liquid crystal interface micromechanics
09:30-09:50	<b>TS.SM13-3.04</b> Sauzay, Maxime: Internal stresses in deformation-induced microstructures	<b>TS.SM15-5.04</b> Waddad, Yassine: A multi-scale model for contact mechanics of rough surfaces	<b>TS.SM16-2.04</b> Michailidis, Georgios: Modal basis approaches in shape and topology optimization of frequency response problems	<b>TS.FS05-2.04</b> Gamnitzer, Peter: Numerical simulation of surface subsidence and heave in water saturated/unsaturated soil
09:50-10:10	<b>TS.SM13-3.05</b> Scales, Martin: Ductile Failure of an Aluminum Alloy Under Moderate to Low Triaxialities	<b>TS.SM15-5.05</b> Pierreux, Gerrit: Realistic RVE-geometries generation for Non-Crimp Fabric composites	<b>TS.SM16-2.05</b> Perlikowski, Przemyslaw: Novel type of tuned mass damper with inerter	<b>TS.FS05-2.05</b> Laouafa, Farid: Modeling of salt and gypsum dissolution processes

TS.FS06-1 515bc	TS.FS07-2 518a	TS.FS08-3 520f	TS.FS10-1 519a
<b>FS06 - Fluid Structure Interactions</b> <i>Chair: Mathias Heil</i>	<b>FS07 - Actuating and Smart Materials</b> <i>Chair: Dimitris Lagoudas</i>	<b>FS08 - Granular Materials and Flows</b> <i>Chair: Eric DiGiuli</i>	<b>FS10 - Education in Mechanics</b> <i>Chair: Keith Moffatt &amp; Michael Gilchrist</i>
<b>TS.FS06-1.01</b> Nové-Josserand, Clotilde: Converting wave energy from fluid-elasticity interactions	<b>TS.FS07-2.01 (INVITED)</b> Patoor, Etienne: Influence of phase transformation anisotropy on transformation surface around a crack tip	<b>TS.FS08-3.01</b> Umbanhowar, Paul: Controlling granular segregation patterns using unsteady flows	<b>TS.FS10-1.01</b> Gilchrist, Michael: Use of student competitions to reinforce the learning experience in freshman mechanics education
<b>TS.FS06-1.02</b> Boucher, Jean-Philippe: Optimal design of rectangular fins for underwater propulsion	<b>TS.FS07-2.02</b> Zhou, Yue-Ting: The effect of surface waviness on contact behaviors in multiferroic structures	<b>TS.FS08-3.02</b> Jop, Pierre: Instability during the erosion of a cohesive granular heap	<b>TS.FS10-1.02 (INVITED)</b> Shimomura, Yutaka: Mechanics for liberal arts students
<b>TS.FS06-1.03</b> Dias, Frederic: A potential-flow model of viscous dissipation for the oscillating wave surger converter	<b>TS.FS07-2.03</b> Jiang, Yunyao: The deformation mechanisms of new chiral structures	<b>TS.FS08-3.03</b> Kang, Wenting: Experimental and theoretical study about depth-dependent drag force in granular matter	<b>TS.FS10-1.03</b> Bigoni, Davide: Teaching structural mechanics with models
<b>TS.FS06-1.04</b> Ducloué, Lucie: Multiple bubble propagation modes in elasto-rigid models of airway reopening	<b>TS.FS07-2.04</b> Lagoudas, Dimitris: Predicting the constitutive response of smas on the basis of composition and heat treatment	<b>TS.FS08-3.04</b> Windows-Yule, Christopher: The Influence of Non-uniform Vibration on Granular Jamming, Segregation and Self-assembly	<b>TS.FS10-1.04</b> Chemisky, Yves: Interactive learning experience in mechanics of materials : The 'simmit' project
<b>TS.FS06-1.05</b> Medraj, Mamoun: Water Droplet Impingement Erosion: Testing, Mechanisms and Improved Representation	<b>TS.FS07-2.05</b> Lange, Stephan: Modeling ferromagnetic and multiferroic behavior based on a condensed method (CM)	<b>TS.FS08-3.05</b> Lueptow, Richard: Modeling segregation in multidisperse granular flow	<b>TS.FS10-1.05</b> Constantinescu, Andrei: Symbolic Computations: Changing the teaching paradigm for continuous mechanics

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	TS.MS04-8 517d	TS.FM04-4 522bc	TS.FM05-3 520d	TS.FM07-6 525ab
	<b>MS04 - Nonlinear Dynamics of Engineering Systems – Nonlinear Dynamics and Energy Harvesting</b> <i>Chairs: E. Pavlovskaja &amp; T. Kapitaniak</i>	<b>FM04 - Compressible Flow Chair: Laurent Jacquin</b>	<b>FM05 - Convection Chair: Olga Shishkina</b>	<b>FM07 - Flow Instability and Transition Chair: Sherwin Maslowe</b>
10:30-10:50	<b>TS.MS04-8.01</b> Mazzilli, Carlos: Non-synchronous free oscillations of Ziegler's column	<b>TS.FM04-4.01</b> Martínez-Ruiz, Daniel: On the interaction of oblique shocks and laminar mixing layer	<b>TS.FM05-3.01</b> Du Puits, Ronald: Boundary layers in turbulent Rayleigh-Bénard convection: The 3D velocity field	<b>TS.FM07-6.01</b> Kaiser, Robert: Large-scale flow modes in turbulent Rayleigh-Bénard convection
10:50-11:10	<b>TS.MS04-8.02</b> Chen, Li-Qun: Nonlinear Oscillation of a Circular Plate Energy Harvester	<b>TS.FM04-4.02</b> Arbos Torrent, Sara: Internal and external jet modes of an over-expanded tic nozzle	<b>TS.FM05-3.02</b> Ching, Emily S.C.: Turbulent Rayleigh-Bénard convection with polymers	<b>TS.FM07-6.02</b> Yakeno, Aiko: Transient dynamics and stability on spanwise-oscillatory turbulent channel
11:10-11:30	<b>TS.MS04-8.03</b> Kecik, Krzysztof: Non-linear dynamics of a pendulum vibration absorber with a Maglev harvester	<b>TS.FM04-4.03</b> Bonnet, Jean-Paul: Sonic flow control by plasma: a new pulsed jet actuator	<b>TS.FM05-3.03</b> Chong, Kai Leong: Effect of confinement on global heat transfer scaling in Rayleigh-Bénard convection	<b>TS.FM07-6.03</b> Yokoyama, Naoto: Initial-condition dependence of large-scale structures in rotating turbulence
11:30-11:50	<b>TS.MS04-8.04</b> Takahashi, Ryo: Possibility of Energy Extraction from Noise under Stochastic Resonance	<b>TS.FM04-4.04</b> Zhang, Yang: Flow Visualization of High-speed Cavity Flows	<b>TS.FM05-3.04</b> Zhang, Jun: Dynamics of a free boundary atop thermal convection	<b>TS.FM07-6.04</b> Xie, Chenyue: Viscous Rayleigh-Taylor instability with and without the diffusion effect
11:50-12:10	<b>TS.MS04-8.05</b> Renault, Alexandre: Hardening Softening Behavior of Antiresonance for Non Linear Torsional Vibration Absorbers	<b>TS.FM04-4.05</b> Tagawa, Yoshiyuki: Structure of a laser-induced shock wave in water	<b>TS.FM05-3.05</b> Goluskin, David: Zonal flows in Rayleigh-Bénard convection	<b>TS.FM07-6.05</b> Leonov, Sergey: Boundary layer receptivity to transient plasma in $m=4.5$ airflow

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<b>FM09 - Geophysical and Environmental Fluid Dynamics</b> <i>Chair: Michael Waite</i>	<b>FM10 - Low Reynolds Number Flow</b> <i>Chair: Elisabeth Lemaire</i>	<b>FM11 - Micro- and Nano-fluidics</b> <i>Chair: Mauro Sbragaglia</i>	<b>FM15 - Vortex Dynamics</b> <i>Chair: Henryk Kudela</i>	M
<b>TS.FM09-3.01</b> Davaranah Jazi, Shahrzad: Enhanced Sedimentation Beneath Sediment Laden Overflows and Interflows	<b>TS.FM10-3.01 (INVITED)</b> Ardekani, Arezoo: Collective motion of microorganisms in complex fluids	<b>TS.FM11-3.01</b> Rosello, Maxime: Influence of nozzle shape on the break-up of non-newtonian ink jets	<b>TS.FM15-3.01</b> Ko, Lok Sun: Experimental investigation of a slender delta wing with apex and tail flap control	10:30-10:50
<b>TS.FM09-3.02</b> Shimokawa, Shinya: Oceanic oscillation phenomena related synchronization and stochastic resonance	<b>TS.FM10-3.02</b> Djellouli, Adel: Artificial swimmers through shell buckling	<b>TS.FM11-3.02 (INVITED)</b> Duan, Huiling: Underwater superhydrophobicity: Fundamentals and applications	<b>TS.FM15-3.02</b> Rockwood, Matthew: Determining the shedding time of vortices in real-time	10:50-11:10
<b>TS.FM09-3.03</b> Khani, Sina: Evaluation of eddy- and non-eddy-viscosity subgrid scale models in stratified turbulence	<b>TS.FM10-3.03</b> Barthes-Biesel, Dominique: Effect of membrane bending resistance on capsule wrinkling in simple shear flow	<b>TS.FM11-3.03</b> Nold, Andreas: From the nano- to the macroscale - Bridging scales for the moving contact line problem	<b>TS.FM15-3.03</b> Fukumoto, Yasuhide: Motion of a vortex pair at high and low Reynolds numbers	11:10-11:30
<b>TS.FM09-3.04</b> Penney, Jared: Numerical simulation of free-slip double-diffusive gravity currents	<b>TS.FM10-3.04</b> Amah, Edison: Electric Field Driven Hierarchical Self-assembly of Monolayers of Mixtures of Particles	<b>TS.FM11-3.04</b> Park, Joonsik: Measurement of apparent slip near a high speed receding contact line on a hydrophobic surface	<b>TS.FM15-3.04</b> Llewellyn Smith, Stefan: Motion of a compressible vortex pair	11:30-11:50
<b>TS.FM09-3.05</b> Laizet, Sylvain: Reynolds number effects for non-channelized non-axisymmetric particle-driven gravity currents	<b>TS.FM10-3.05</b> Bonnecaze, Roger: Multi-scale model of magnetically-driven flows in dead-end channels	<b>TS.FM11-3.05</b> Fullana, Jose Maria: Effect of the lubrication film on the droplet dynamics in a Hele-Shaw microchannel	<b>TS.FM15-3.05</b> Kerr, Robert: What trefoil reconnection says about Navier-Stokes regularity	11:50-12:10
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	TS.SM01-4 516cde	TS.SM05-9 519b	TS.SM11-2 515a	TS.SM12-4 518b
	<b>SM01 - Biomechanics and Biomaterials</b> <i>Chair: Jim Johnson</i>	<b>SM05 - Fracture Mechanics</b> <i>Chair: R. Narasimhan</i>	<b>SM11 - Multibody and Vehicle Dynamics</b> <i>Chair: Robert Seifried</i>	<b>SM12 - Nanostructures and MEMS</b> <i>Chair: Kenneth Liechti</i>
10:30-10:50	<b>TS.SM01-4.01 (INVITED)</b> Long, Mian: Biomechanics of hepatic cells and engineered construction of liver	<b>TS.SM05-9.01</b> Ravi-Chandar, Ravi: Emergence of echelon cracks under mixed-mode I + III loading	<b>TS.SM11-2.01 (INVITED)</b> Ellermann, Katrin: Parameter estimation in vehicle dynamics: Train, track and fault monitoring	<b>TS.SM12-4.01 (INVITED)</b> Zhu, Yong: Giant Anelasticity and Energy Dissipation in Single-Crystalline Nanowires
10:50-11:10	<b>TS.SM01-4.02</b> Spector, Alexander: Mechanics of stem cell myogenesis	<b>TS.SM05-9.02</b> Kolvin, Itamar: Crack front dynamics	<b>TS.SM11-2.02</b> Liu, Jiapeng: The evaluation of steering performance of drilling assemblies based on multibody dynamics approach	<b>TS.SM12-4.02</b> Linne, Marissa: Examination of interactions between deformation mechanisms in fcc thin films using SEM-DIC
11:10-11:30	<b>TS.SM01-4.03</b> Belay, Tsegay: The role of line tension on budding formation induced by diffusion of proteins on lipid bilayer	<b>TS.SM05-9.03</b> Sherman, Dov: Crack dynamics in brittle crystals at the low energy speed regime	<b>TS.SM11-2.03</b> Meijaard, Jacob: A modified generalized strain formulation for flexible multibody system modelling	<b>TS.SM12-4.03</b> Mirzazadeh, Ramin: On-chip testing device for the micromechanical characterization of polysilicon films
11:30-11:50	<b>TS.SM01-4.04</b> Biria, Aisa: The conformational change of animal cells during cytokinesis	<b>TS.SM05-9.04</b> Kaliske, Michael: Approaches for dynamic fracture simulation: r-adaptive material force and phase-field method	<b>TS.SM11-2.04</b> Orosz, Gabor: Analysis of Heterogeneous Connected Vehicles via Modal Perturbation Method	<b>TS.SM12-4.04</b> Pan, Fei: Stiffness threshold of randomly distributed carbon nanotube networks
11:50-12:10	<b>TS.SM01-4.05</b> Franck, Christian: Mean deformation metrics for quantifying 3D cell-matrix interactions	<b>TS.SM05-9.05</b> Vandenbergh, Nicolas: Fragmentation as an aggregation process	<b>TS.SM11-2.05</b> Schiehlen, Werner: From IUTAM Symposia to the International Association of Vehicle System Dynamics	<b>TS.SM12-4.05</b> Richter, Gunther: Growth and mechanical properties of metal nanowhiskers

TS.SM13-4 516a	TS.SM15-6 516b	TS.SM16-3 518c	TS.FS05-3 521abc
<b>SM13 - Plasticity, Viscoplasticity and Creep</b> <i>Chair: Georg Dolzmann</i>	<b>SM15 - Computational Solid Mechanics</b> <i>Chair: Manas Upadhyay</i>	<b>SM16 - Vibrations and Control of Structures</b> <i>Chair: Sam Asokanathan</i>	<b>FS05 - Porous Media</b> <i>Chair: Christian Hellmich</i>
<b>TS.SM13-4.01 (INVITED)</b> Leblond, Jean-Baptiste: Toward a general description of transformation plasticity in metals and alloys	<b>TS.SM15-6.01</b> Ghaisas, Niranjan: Unified treatment of shocks and material interfaces in hyperelastic solids and fluids	<b>TS.SM16-3.01 (INVITED)</b> Keogh, Patrick: Control of contact events in active rotor dynamic systems	<b>TS.FS05-3.01</b> Louge, Michel: Tension and tomographic measurements while draining water from a granular sample
<b>TS.SM13-4.02</b> Skocze, Blazej: Constitutive model of serrated yielding at extremely low temperatures including radiation damage	<b>TS.SM15-6.02</b> Polyzois, Ioannis: Simulating the microstructural failure mechanism of shear bands in steel	<b>TS.SM16-3.02</b> Reshmin, Sergey: Time-Optimal Control for Pendulum-Like Systems in Case of Large Control Bounds	<b>TS.FS05-3.02</b> Schrefler, Bernhard: Shear and mixed mode fracture in disordered saturated porous media
<b>TS.SM13-4.03</b> Tabin, Jakub: Strain localization during discontinuous plastic flow at extremely low temperatures	<b>TS.SM15-6.03</b> Fan, S C: Strain-rate-dependent cohesive law in modelling breakup of earth covered magazine	<b>TS.SM16-3.03</b> Mal, Ajit: Semi-analytical modeling of substrate loss of miniature resonators	<b>TS.FS05-3.03</b> Shang, Zhihao: Competitive adsorption of gas mixtures in fractal slit nanopores
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<b>TS.SM13-4.05</b> Idiart, Martin: Bounds for the plastic strength of polycrystalline voided solids	<b>TS.SM15-6.05</b> Sattarpanah Karganroudi, Sasan: Validation and verification of a non-rigid part inspection method	<b>TS.SM16-3.05</b> Tyrell, Nathan: Attitude control via structural vibration	<b>TS.FS05-3.05</b> Huang, Zhangfeng: Effect of local porous coating on the stability of boundary layer

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	<b>FS06 - Fluid Structure Interactions</b> <i>Chair: Michael Paidoussis</i>	<b>FS07 - Actuating and Smart Materials</b> <i>Chair: Yue-Ting Zhou</i>	<b>FS08 - Granular Materials and Flows</b> <i>Chair: tba</i>	<b>FS10 - Education in Mechanics</b> <i>Chair: Keith Moffatt &amp; Michael Gilchrist</i>
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10:50-11:10	<b>TS.FS06-2.02</b> Kamrin, Ken: Eulerian Method for FSI Based on the Reference Map	<b>TS.FS07-3.02</b> Wingen, Marius: Effects of switching processes in ferroelectrics on the temperature: A modeling approach	<b>TS.FS08-4.02</b> Mathonnet, Jean-Eric: Singular behavior of a cohesive powder under horizontal vibrations	<b>TS.FS10-2.02 (INVITED)</b> Wiercigroch, Marian: Nonlinear mechanics for undergraduates
11:10-11:30	<b>TS.FS06-2.03</b> Labbé, Romain: Mist harvesting with vertical fibers	<b>TS.FS07-3.03</b> Srinivasan, Prashanth: Molecular Dynamics Simulations of Phase Transformations in NiTi Bicrystals	<b>TS.FS08-4.03</b> Maurin, Raphael: Granular rheology in bedload transport	<b>TS.FS10-2.03</b> Pustovalova, Olga: FlexPDE as a teaching tool in the field of mechanics and mathematical modelling
11:30-11:50	<b>TS.FS06-2.04</b> Luzzatto-Fegiz, Paolo: Entrainment models of turbine wakes, wind farms, and flow adjustment in canopies	<b>TS.FS07-3.04</b> Tobushi, Hisaaki: Functionally-graded and composite shape memory actuation	<b>TS.FS08-4.04</b> Merceron, Aymeric: Reorganization of a granular medium around a localized transformation	<b>TS.FS10-2.04</b> Wilson, Helen: The fluid dynamics of the chocolate fountain: An engaging project
11:50-12:10	<b>TS.FS06-2.05</b> Griffith, Martin: Energy-harvesting from flow-induced vibration of circular and elliptical cylinders	<b>TS.FS07-3.05</b> Zhang, Xiaolong: Modeling of the Chemo-mechanical Behaviors of Reactive Materials	<b>TS.FS08-4.05</b> Morize, Cyprien: How do fish hide in the sand? Erosion by an oscillating foil	

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<b>MS04 - Nonlinear Dynamics of Engineering Systems – Dynamical Interactions in Coupled Systems</b> <i>Chairs: F. Romeo &amp; M. Wiercigroch</i>	<b>FM04 - Compressible Flow Chair: Azemi Benaissa</b>	<b>FM05 - Convection Chair: Jin-Qiang Zhong</b>	<b>FM07 - Flow Instability and Transition Chair: François Gallaire</b>
<b>TS.MS04-9.01</b> Manevitch, Leonid: Strongly Nonlinear Resonance Dynamics of Quasi-One-Dimensional Finite Oscillatory Chains	<b>TS.FM04-5.01 (INVITED)</b> Vanstone, Leon: Effect of upstream disturbances on the unsteadiness of swept-ramp interactions at mach 2	<b>TS.FM05-4.01</b> Kelley, Douglas: Low-dimensional convection models from vector cylindrical harmonics	<b>TS.FM07-7.01</b> Luchini, Paolo: Higher-order WKBJ correction in spatially-developing open flows
<b>TS.MS04-9.02</b> Gendelman, Oleg: Accelerating Oscillatory Fronts in a Sonic Vacuum with Non-local Interactions	<b>TS.FM04-5.02</b> Karimi, Mona: Kelvin-Helmholtz instability in compressible shear flows: Effect of wavenumber	<b>TS.FM05-4.02</b> Kunnen, Rudie: Turbulent rotating convection: A Lagrangian perspective	<b>TS.FM07-7.02</b> Ziade, Paul: Sensibility of Rayleigh and Orr-Sommerfeld equations to changes in base flow
<b>TS.MS04-9.03</b> Charlemagne, Simon: Nonlinear Interactions Between Coupled Nonlinear Oscillators at Different Layers of Time	<b>TS.FM04-5.03</b> Kosinov, Alexander: Excitation of the streaks by weak shock waves in the supersonic boundary layer	<b>TS.FM05-4.03</b> Shaw, Raymond: Cloud formation through isobaric mixing in turbulent Rayleigh-Bénard convection	<b>TS.FM07-7.03</b> Bihi, Ilyesse: Microparticles effects on the stability of an air-water interface
<b>TS.MS04-9.04</b> Moleron, Miguel: Synchronized Frequency Conversion in Nonlinear Lattices		<b>TS.FM05-4.04</b> Xi, Heng-Dong: The Role of Higher Order Flow Modes in Turbulent Thermal Convection	<b>TS.FM07-7.04</b> Gepner, Stanislaw: Stability of flow in a diverging-converging channel at moderate amplitudes of corrugation
<b>TS.MS04-9.05</b> Kapitaniak, Tomasz: Chimera states for coupled pendula		<b>TS.FM05-4.05</b> Abtahi, Arman: On the analysis of flows in heated corrugated conduits	<b>TS.FM07-7.05</b> Ren, Jie: Secondary instabilities of Görtler vortices in high-speed boundary layer flows

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<b>TS.SM01-5.01</b> Shearer, Tom: Sequential Straightening and Loading Viscoelasticity	<b>TS.SM02-4.01 (INVITED)</b> Babehsko, Vladimir: Action of the two semi-infinite plates on the elastic layer	<b>TS.SM05-10.01 (INVITED)</b> Kysar, Jeff: Fracture and indentation in single metal crystals	<b>TS.SM08-5.01</b> Jensen, Henrik: Steady State Kink Band Broadening in Layered Materials
<b>TS.SM01-5.02</b> Martini, Roberto: Design of bioinspired armor for optimum puncture resistance, stability and flexural compliance	<b>TS.SM02-4.02</b> Cocou, Marius: A class of slip depending surface interactions	<b>TS.SM05-10.02</b> Srivastava, Ankit: Ductile fracture of controlled microstructures	<b>TS.SM08-5.02</b> Mallika Arachchige, Nuwan Dewapriya: Modelling adhesion of defective graphene interfaces
<b>TS.SM01-5.03</b> Jasiuk, Iwona: Hierarchical modeling of plasticity and strength of trabecular bone	<b>TS.SM02-4.03</b> Huang, Gan-Yun: Model for friction in small-sized adhesive particles	<b>TS.SM05-10.03</b> Benzerga, Amine: Micromechanical modeling of void coalescence in ductile solids	<b>TS.SM08-5.03</b> Mirkhalaf, Mohammad: Carving 3D architectures to transform the mechanics and performance of materials
<b>TS.SM01-5.04</b> Kumar, Alope: Nonlinear deformation and localized failure of bacterial streamers in creeping flows		<b>TS.SM05-10.04</b> Liu, Zhigang: On the transition from void collapse to void coalescence	<b>TS.SM08-5.04</b> Manzhairov, Alexander: Fundamentals of surface growth of solids in nature and technology
<b>TS.SM01-5.05</b> Melancon, David: Mechanical response surfaces of a periodic porous biomaterial for orthopaedic implants		<b>TS.SM05-10.05</b> Felter, Christian: Crack tip flipping under Mode I/III tearing	

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13:50-14:10	<b>TS.SM11-3.03</b> Tian, Qiang: Nonlinear dynamics of flexible multibody systems with uncertain interval parameters	<b>TS.SM12-5.03</b> Vairo, Giuseppe: A 3-layered non-linear homogenization approach for nanoporous materials	<b>TS.SM13-5.03</b> Xiao, Xiayi: Prediction of mechanical behaviors of radiated Fe-Cr alloys by plasticity theory	<b>TS.SM15-7.03</b> Wang, Qingguo: Improvement of weight-efficiency for a vehicle component based on the U* theory
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14:30-14:50	<b>TS.SM11-3.05</b> Jarzbowska, Elebieta: An underwater inertia-based propelled vehicle dynamics and performance	<b>TS.SM12-5.05</b> Zhang, Jiayi: Development of a Robust Coupled Atomistic-continuum Model for Crack Propagation	<b>TS.SM13-5.05</b> Madi, Yazid: Modeling the 3D plastic anisotropy of magnesium AZ31B alloy	<b>TS.SM15-7.05</b> Chauvin, Rémi: A cell centered finite volume method for solving hyperelasticity equations

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<b>SM16 - Vibrations and Control of Structures</b> <i>Chair: Ilmar Santos</i>	<b>FS04 - Chaos and Pattern Formation</b> <i>Chair: Marius Paraschivoiu</i>	<b>FS06 - Fluid Structure Interactions</b> <i>Chair: Michael Paidoussis</i>	<b>FS08 - Granular Materials and Flows</b> <i>Chair: Diego Maza</i>
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<b>TS.SM16-4.02</b> Warminski, Jerzy: Nonlinear vibration control of a rotating composite beam with an embedded active element	<b>TS.FS04-1.02 (INVITED)</b> Revzen, Shai: Why we need more degrees of freedom	<b>TS.FS06-3.02</b> Modarres-Sadeghi, Yahya: A model for wall shear stress estimation in abdominal aortic aneurysms using POD	<b>TS.FS08-5.02</b> Pouliquen, Olivier: Scaling Laws for the Segregation Forces in Sheared Granular Flows
<b>TS.SM16-4.03</b> Weder, Mario: Damping of waves in a layered structure composed of two elastic plates coupled by a viscous liquid	<b>TS.FS04-1.03 (INVITED)</b> Hikihara, Takashi: Power Packet Dispatching and Dynamics in Network	<b>TS.FS06-3.03</b> Nave, Gary: Wake stiffness and its application: Tethered cylinders and flying snakes	<b>TS.FS08-5.03</b> Sano, Osamu: Solid-fluid transition and ripple in vertically vibrated thicker granular layer
<b>TS.SM16-4.04</b> Yamane, Saeha: Identification of fractional order of viscoelastic materials by feedback control	<b>TS.FS04-1.04</b> Taira, Kunihiro: Complex network analysis of unsteady fluid flows	<b>TS.FS06-3.04</b> Mittal, Sanjay: Resonance-forever in laminar flow regime	<b>TS.FS08-5.04</b> Shatoff, Elan: Discontinuous shear thickening in dense suspensions: A force-space analysis
<b>TS.SM16-4.05</b> Yang, Haolin: Shake table test of an isolated bridge with cable-sliding friction aseismic bearing		<b>TS.FS06-3.05</b> Olivier, Mathieu: On the deviation motion of self-propelled flexible flapping wings	<b>TS.FS08-5.05</b> Xue, Kun: Numerical simulation of the formation of shock induced particle jets using DEM

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## Special Lectures and Presentations

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**CL – Closing Lecture***Chair: JB Leblond*

Fleck, Norman A.: Microarchitected materials: are they effective?

*Room 517abc*

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