



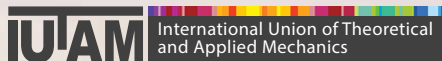
**24th International Congress of
Theoretical and Applied Mechanics**

**24^e Congrès international de mécanique
théorique et appliquée**

Palais des congrès, Montréal, Canada

August 21 – 26 août 2016

Program / Programme



Photos © NASA and Tourisme Montréal

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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.

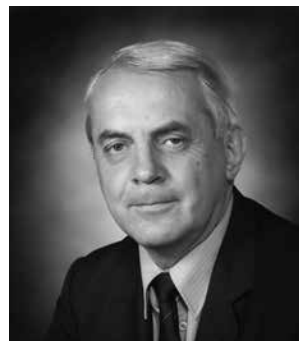
While there are too many individuals to name, I would like to highlight the contributions of several groups: the IUTAM Congress Committee, the International Papers Committee, the Session Chairs and the National Committee reviewers whose dedication has resulted in the program I am proud to present to 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, 24th 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, 24th 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

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). 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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S. (Stavros) Tavoularis (University of Ottawa)
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 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.

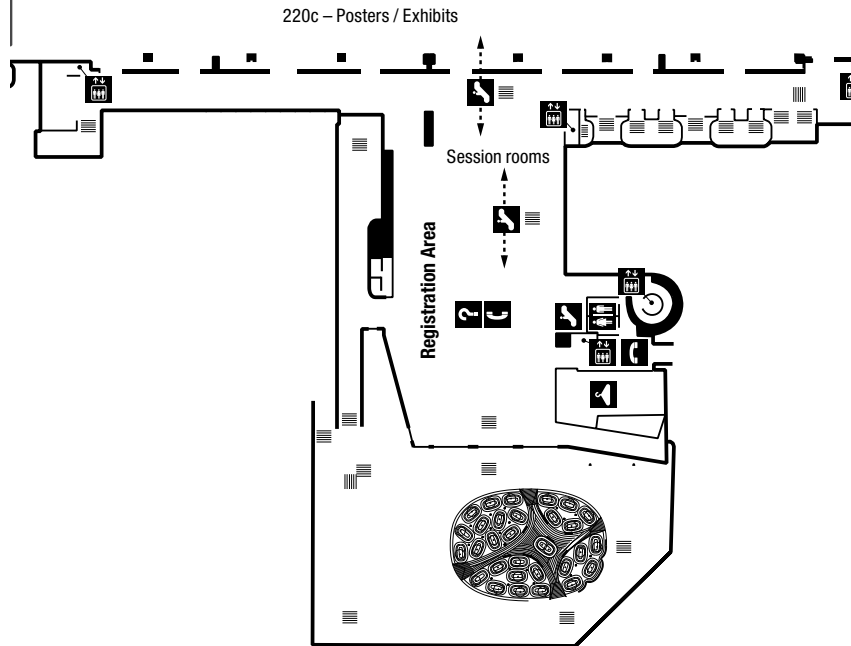
Pourboires

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.

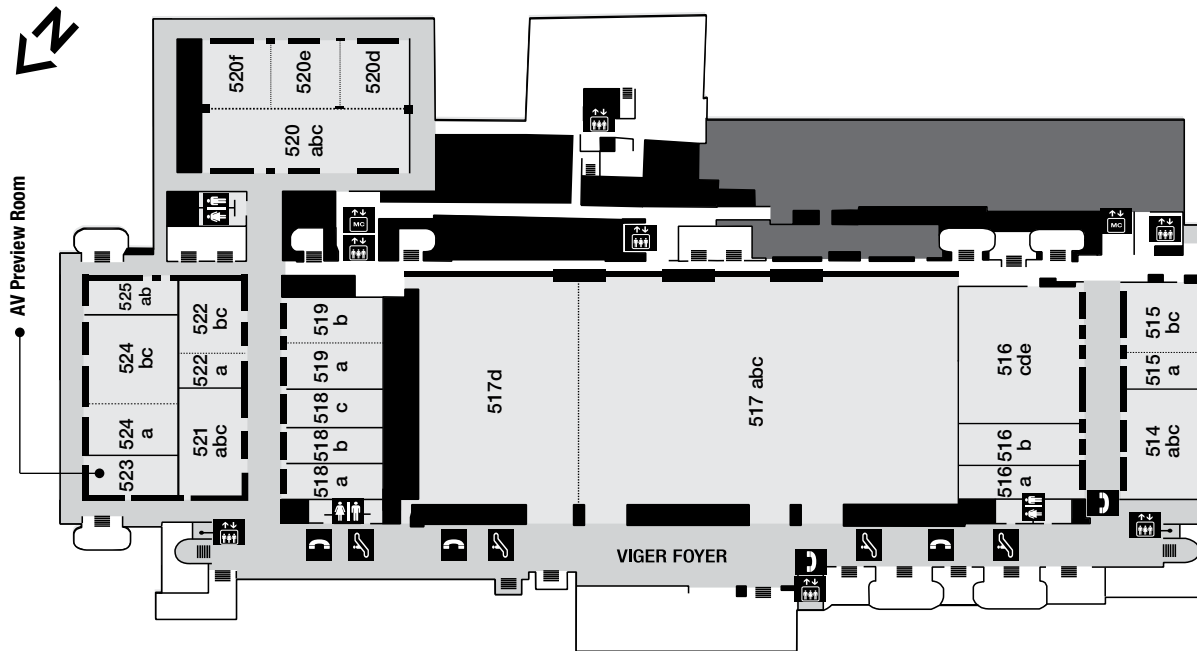
- 1 Hôtel Travelodge Montréal Centre
- 2 Hôtel InterContinental Montréal
- 3 Le Westin Montréal
- 4 Hôtel Zéro 1
- 5 Holiday Inn Select Montréal Centre-Ville (Downtown/Convention Centre)
- 6 Hôtel Faubourg Montréal
- 7 Candlewood Suites
- 8 Hôtel Le Dauphin Montréal Downtown
- 9 Embassy Suites by Hilton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



Level 2



Level 5



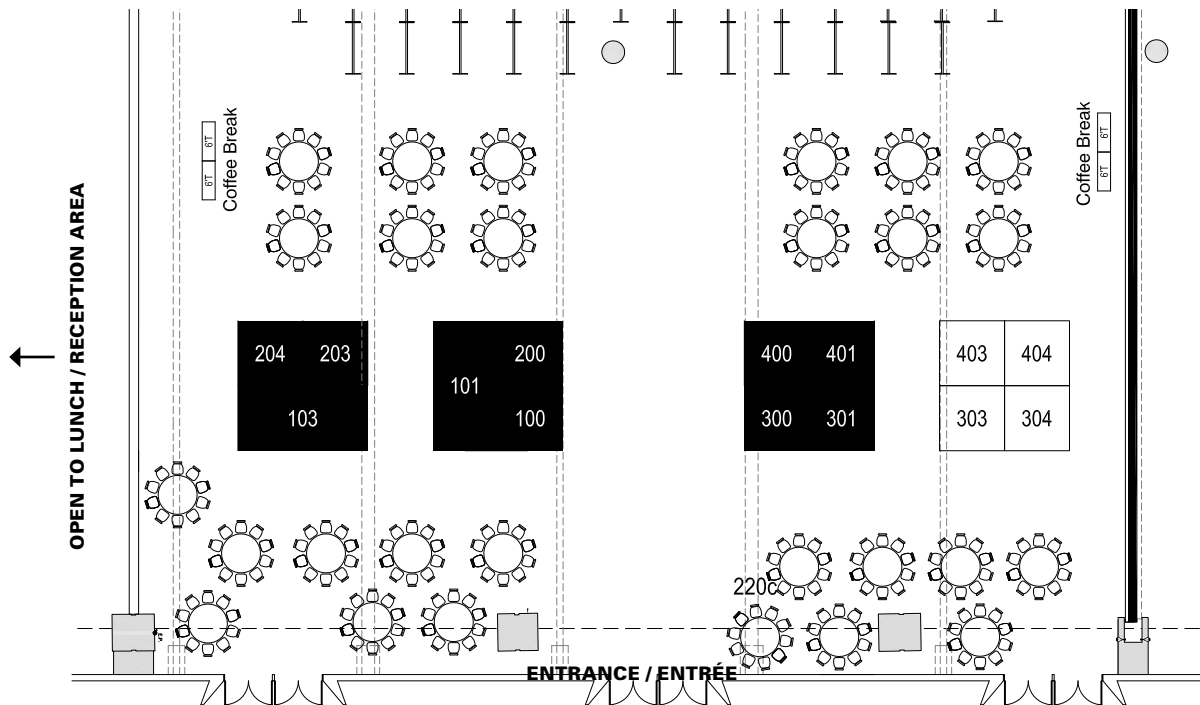



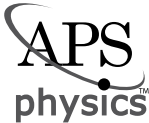

Exhibit Hours



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	<div data-bbox="327 425 502 601">  </div> <p data-bbox="613 373 1596 492">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 data-bbox="613 505 1596 653">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	<div data-bbox="277 239 462 394">  </div> <p data-bbox="567 149 1559 296">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 data-bbox="567 311 1547 487">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	<div data-bbox="231 638 510 695">  CAMBRIDGE UNIVERSITY PRESS </div> <p data-bbox="567 513 1550 660">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: www.cambridge.org/academic</p> <p data-bbox="567 676 1550 823">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 : www.cambridge.org/academic (<i>en anglais seulement</i>).</p>

Booth	
401	<div data-bbox="273 280 564 346">  </div> <p data-bbox="614 146 1580 291">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 data-bbox="614 308 1597 484">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	<div data-bbox="262 674 572 750">  UNIVERSITÉ Concordia UNIVERSITY </div> <p data-bbox="614 513 1589 689">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 data-bbox="614 707 1572 912">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	<div data-bbox="282 246 458 448" data-label="Image"> </div> <p data-bbox="567 149 1530 325">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 data-bbox="567 342 1559 550">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 data-bbox="215 687 522 736">IOP Publishing</p> <p data-bbox="567 573 1552 692">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 data-bbox="567 709 1559 853">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	<div data-bbox="265 288 561 377">  </div> <p data-bbox="614 149 1602 294">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 data-bbox="614 310 1602 518">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	<div data-bbox="265 656 571 739">  </div> <p data-bbox="614 542 1602 660">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 data-bbox="614 677 1602 853">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	<div data-bbox="225 249 510 314">  VirginiaTech <i>Invent the Future®</i> </div> <div data-bbox="225 342 517 394"> Department of Biomedical Engineering and Mechanics </div> <div data-bbox="567 149 1542 294"> <p>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> </div> <div data-bbox="567 311 1555 487"> <p>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> </div>

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
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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.

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

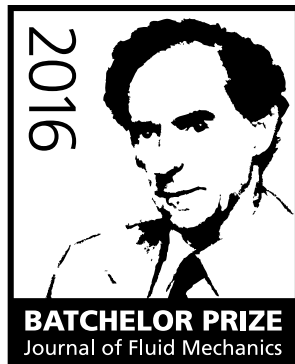


The G K Batchelor Prize for 2016 is awarded to Professor Raymond E. Goldstein FRS, Schlumberger Professor of Complex Physical Systems in the Department of Applied Mathematics and Theoretical Physics and Fellow of Churchill College, University of Cambridge.

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 <i>Chair: Michael Paidoussis</i>
Peltier, W. Richard: Ocean turbulence and climate history <i>Room 517abc</i>

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MONDAY, AUGUST 22 | MORNING

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

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

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MONDAY, AUGUST 22 | MORNING

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MONDAY, AUGUST 22 | EARLY AFTERNOON

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TS.MS01-2 525ab

MS01 - Bypass Transition
Chair: Bruno Eckhardt

TS.MS01-2.01

Sano, Masaki: Universal critical behavior of the transition to turbulence in channel flow

TS.MS01-2.02

Duguet, Yohann: Localized structures on the edge in boundary layers and their traces in bypass transition

TS.MS01-2.03

Kushwaha, Anubhav: Temporal and spatial intermittencies within Newtonian turbulence

TS.MS01-2.04

Nagata, Masato: Bifurcations in rotating plane Couette flow at moderate Reynolds numbers

TS.MS01-2.05

Xi, Li: Effects of drag-reducing polymers on the transient development of turbulent coherent structures

TS.MS01-2.06

Dubief, Yves: The role of elasto-inertial turbulence on channel flow drag

TS.MS02-2 520abc

MS02 - Fluid Active Matter
Chair: Federico Toschi

TS.MS02-2.01

Michalec, François-Gaël: Copepod escape and relocation jumps in turbulence

TS.MS02-2.02

Saintillan, David: Transition to spontaneous directional flows in confined active fluids

TS.MS02-2.03

Popescu, Mihail: Effective interactions between chemically active colloids and surfaces

TS.MS02-2.04

Wan, Kirsty: Stochastic gait-switching in flagellate microalgae

TS.MS02-2.05

DeSimone, Antonio: Metaboly in euglenids: a model and its experimental validation

TS.MS02-2.06

Berti, Stefano: Effects of Discreteness on Population Persistence in an Oasis

TS.MS04-2 517d

MS04 - Nonlinear Dynamics of Engineering Systems – Rigid Body Systems

Chairs: Gábor Stépán & Oded Gottlieb

TS.MS04-2.01

Chernousko, Felix: Optimization of locomotion for multibody systems moving along a plane

TS.MS04-2.02

Kelly, Scott: Entrainment and multiscale dynamics in vibrationally driven nonholonomic systems

TS.MS04-2.03

Pfeiffer, Friedrich: MBS Approach for a Chain Fountain

TS.MS04-2.04

Kirillov, Oleg: Precession on a rotating saddle: A gyro force in an inertial frame

TS.MS04-2.05

Shimomura, Yutaka: Freaky motion of a spinning spheroid induced by a slight break of its axial symmetry

TS.MS04-2.06

Naprstek, Jiri: Gibbs-Appel Formulation of Non-Holonomic Motion of a Ball on a Spherical Surface

TS.MS05-2 516cde

MS05 - Soft Solid Active Matter
Chair: Liying Jiang

TS.MS05-2.01

Safran, Samuel: Mechanical synchronization of active beating within and between cardiomyocytes

TS.MS05-2.02

McGarry, Patrick: On the Free Energy of Cells Spread on Micropatterned Substrates

TS.MS05-2.03

Vernerey, Franck: Catch bonds and mechano-sensitivity of acto-myosin filament networks

TS.MS05-2.04

Feng, Xi-Qiao: Biochemomechanical poroelastic theory of tumor growth

TS.MS05-2.05

Noselli, Giovanni: Hydraulic fracture and toughening of epithelial cell monolayers

TS.MS05-2.06

Holmes, Douglas: Geometry and Mechanics of Shell Growth

TS.MS06-2 516b	TS.FM02-1 520e	TS.FM06-1 524bc	TS.FM12-1 520f
MS06 - Topology Optimization – micro, nano and multiscale applications <i>Chair: Ole Sigmund</i>	FM02 - Boundary Layers <i>Chair: Beverly McKeon</i>	FM06 - Drops, Bubbles and Multiphase Flows <i>Chair: Howard Stone</i>	FM12 - Non-Newtonian and Complex Fluids <i>Chair: Ian Frigaard</i>
TS.MS06-2.01 Cheng, Gengdong: Two-scale topology optimization based on Moving Morphable Components (MMC)	TS.FM02-1.01 (INVITED) Morrison, Jonathan: The inertial subrange in turbulent pipe flow	TS.FM06-1.01 (INVITED) Clanet, Christophe: Giant Soap Bubbles	TS.FM12-1.01 (INVITED) Dimakopoulos, Yannis: What is the role of blood elasticity in the formation of CFL in microvessels?
TS.MS06-2.02 Benard, Andre: Topology optimization and design of solid particles in suspension	TS.FM02-1.02 Tardu, Sedat: Fine structure of near wall dissipation	TS.FM06-1.02 (INVITED) Lister, John: Bubble coalescence at any Reynolds number	TS.FM12-1.02 Shinbrot, Troy: Paradoxical flows in complex fluids
TS.MS06-2.03 Cherkaev, Andrej: Optimal multimaterial composite structures and optimal designs	TS.FM02-1.03 Monkewitz, Peter: How comparable are the three “canonical” turbulent flows?	TS.FM06-1.03 Barakat, Joseph: The motion of a closely fitting vesicle in a tube	TS.FM12-1.03 Bryngelson, Spencer: Buckling and the rheology of an elastic capsule suspension
TS.MS06-2.04 Burczynski, Tadeusz: Topology Optimization in Nano-Scale for Generation of New Graphene-Like Materials	TS.FM02-1.04 De Giovanetti, Matteo: Skin friction generation by attached eddies in a turbulent channel	TS.FM06-1.04 Biben, Thierry: Laser generated nano-bubbles around nano-particles	TS.FM12-1.04 Harlen, Oliver: Capillary thinning and break-up of particulate suspensions
TS.MS06-2.05 Andreasen, Casper: On topology optimization of inertia driven dosing units	TS.FM02-1.05 Diaz Daniel, Carlos: A conceptual model for the filtered wall-shear stress statistics in turbulent boundary layers	TS.FM06-1.05 Bird, James: The residence time of a drop on a spoked macrotexture	TS.FM12-1.05 Muradoglu, Metin: Impact and spreading of a viscoelastic droplet on a solid surface
TS.MS06-2.06 Duysinx, Pierre: Generalized SFP parameterization for topology optimization including lattice structures	TS.FM02-1.06 Byers, Clayton: Turbulent temperature measurements in water	TS.FM06-1.06 Gong, Shi Wei: Bubble oscillating near a deformable sphere in water	TS.FM12-1.06 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
	FM13 - Computational Fluid Dynamics <i>Chair: Yukio Kaneda</i>	FM14 - Turbulence <i>Chair: Luca Biferale</i>	FM16 - Waves in Fluids <i>Chair: John Grue</i>	SM04 - Elasticity <i>Chair: Weiqiu Chen</i>
13:20-13:40	TS.FM13-1.01 (INVITED) Moser, Robert: Treating anisotropy in LES subgrid models	TS.FM14-1.01 (INVITED) Oberlack, Martin: Circumnavigating the closure problem of turbulence- A lie symmetry approach	TS.FM16-1.01 (INVITED) Toledo, Yaron: A nonlinear triad interaction source term for wave forecasting models	TS.SM04-1.01 (INVITED) Ashida, Fumihiro: Control of complicated stress oscillations in FGPM thin plates
13:40-14:00	TS.FM13-1.02 Lamballais, Eric: Explicit vs. implicit subgrid-scale modelling for les	TS.FM14-1.02 Tatsumi, Tomomasa: Statistical normality of homogeneous isotropic turbulence	TS.FM16-1.02 (INVITED) Babanin, Alexander: Turbulence induced by surface water waves	TS.SM04-1.02 Banerjee, Amartya: A framework for frequently occurring non-generic degeneracies
14:00-14:20	TS.FM13-1.03 Schlatter, Philipp: Pressure gradient turbulent boundary layers developing around a wing section	TS.FM14-1.03 Okamura, Makoto: A Lagrangian closure approximation for homogeneous isotropic turbulence	TS.FM16-1.03 Perrard, Stéphane: Surface waves on levitating liquid	TS.SM04-1.03 Dai, Hui-Hui: On a consistent shell theory based on finite elasticity
14:20-14:40	TS.FM13-1.04 Vidal, Alvaro: Influence of duct corner geometry on secondary flow: Convergence from square duct to pipe	TS.FM14-1.04 Pollard, Andrew: Hot-wire spatial resolution effects in measurements of turbulent round jets	TS.FM16-1.04 Mizuta, Yo: Numerical and theoretical analyses on interface wave of magnetic fluids	TS.SM04-1.04 Kapuria, Santosh: Accurate prediction of free edge effect in piezolaminated panels
14:40-15:00	TS.FM13-1.05 Kim, Pilbum: Non-equilibrium effects on hypersonic turbulent boundary layers	TS.FM14-1.05 Nedi, Jovan: Energy dissipation scaling in uniformly sheared and in multi-structure turbulence	TS.FM16-1.05 Vogt, Tobias: Investigation of inertial waves inside a liquid metal column by means of electromagnetic fields	TS.SM04-1.05 Liu, Liping: Geometrically nonlinear theories for curved beams and shells
15:00-15:20	TS.FM13-1.06 Köthe, Thomas: Adjoint shape optimization based on DNS of turbulent channel flow	TS.FM14-1.06 Kobayashi, Hiromichi: Energy transfer across scales around elliptic Burgers vortices	TS.FM16-1.06 Steinrück, Herbert: Asymptotic analysis of a rotary wave in a cylindrical container	TS.SM04-1.06 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
SM05 - Fracture Mechanics <i>Chair: Emmanuel Villermaux</i>	SM06 - Geophysics and Geomechanics <i>Chair: tba</i>	SM07 - Impact Mechanics and Wave Propagation <i>Chair: Eugene Zaretsky</i>	SM09 - Phase and Chemical Transformations and Thermo-mechanical Phenomena <i>Chair: Alexander Freidin</i>
TS.SM05-1.01 (INVITED) Heyden, Stefanie: Towards a one-parameter fracture model in soft matter mechanics	TS.SM06-1.01 (INVITED) Fialko, Yuri: Velocity-weakening behavior of granite and gabbro at temperature up to 600 degrees C	TS.SM07-1.01 (INVITED) Chen, Wayne: High-speed damage visualization and xrd in materials under impact	TS.SM09-1.01 (INVITED) Guduru, Pradeep: The influence of elastic strain on catalytic activity
TS.SM05-1.02 Moulinet, Sébastien: Fracture patterns in exploding balloons	TS.SM06-1.02 Jiang, Junle: Variability of earthquake slip and arresting depths in fault models	TS.SM07-1.02 Thevamaran, Ramathan: Dynamic Behaviour of Single Crystalline Silver Microcubes	TS.SM09-1.02 Belyaev, Alexander: An approach to modeling the effect of hydrogen on stress-strain material law
TS.SM05-1.03 Kroon, Martin: Dynamic crack propagation in rubber	TS.SM06-1.03 Higgins, Natalie: Exploring models of foreshock sources using rate-and-state friction	TS.SM07-1.03 Kettenbeil, Christian: Experimental investigation of the dynamic behavior of metaconcrete	TS.SM09-1.03 Di Leo, Claudio: Chemo-mechanics theory for amorphous Silicon electrodes
TS.SM05-1.04 Bouklas, Nikolaos: Effect of Solvent Diffusion on Fracture of Hydrogels	TS.SM06-1.04 Kotov, Vasilii: Experimental studies and mathematical modeling for dynamic deformation of soils	TS.SM07-1.04 Kanel, Gennady: Appearance of dislocations multiplication in the dynamics of elastic-plastic waves in solids	TS.SM09-1.04 Freidin, Alexander: Chemical affinity tensor and kinetics of stress-assisted chemical reaction front
TS.SM05-1.05 Liu, Zhanli: Hydraulic fracture in porous media	TS.SM06-1.05 Lui, Semechah K. Y.: Physics-based elastodynamic modeling of interacting frictional shear cracks	TS.SM07-1.05 Schwab, Martin: Modelling Laminated Fabric Composites under Impact Loads	TS.SM09-1.05 Song, Jizhou: Purification of single-walled carbon nanotubes based on thermocapillary flow
TS.SM05-1.06 Barthelat, Francois: Overcoming brittleness through bio-inspiration and microarchitecture	TS.SM06-1.06 Creyts, Timothy: Recirculating Ice Eddies in Subglacial Valleys	TS.SM07-1.06 Matthes, Melissa: Hypervelocity impact of Ti6Al4V alloy materials	

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TS.SM10-1 518c	TS.SM14-1 515bc	TS.FS01-1 522bc	TS.FS03-1 519a
SM10 - Sizescale Effects in Materials <i>Chair: Christian Niordson</i>	SM14 - Stability of Structures <i>Chair: Marco Amabili</i>	FS01 - Acoustics <i>Chair: Luc Mongeau</i>	FS03 - Experimental Methods in Mechanics <i>Chair: Wei-Chung Wang and Huimin Xie</i>
TS.SM10-1.01 (INVITED) Geers, Marc: On the role and modelling of internal boundaries in size effects for metals	TS.SM14-1.01 (INVITED) Bigoni, Davide: Flutter and dissipation instabilities in structures subject to dry friction follower forces	TS.FS01-1.01 (INVITED) Mao, Yijun: Convective vector wave equation of aeroacoustics	TS.FS03-1.01 (INVITED) Cobelli, Pablo: New developments in space- and time-resolved measurements of free-surface water waves
TS.SM10-1.02 Mesarovic, Sinisa: Size-dependent Energy of Elastic-plastic Crystals	TS.SM14-1.02 Zippo, Antonio: Experimental investigation of dynamic behaviour of pre-compressed circular cylindrical shell	TS.FS01-1.02 (INVITED) Mongeau, Luc: Mechanical characterization of collagen I fibrils through 3-point bending using AFM	TS.FS03-1.02 Vetrano, Maria Rosaria: Experimental characterisation of In2 sloshing by means of non-intrusive optical techniques
TS.SM10-1.03 Svendsen, Bob: Strongly versus weakly non-local dislocation transport and pile-up	TS.SM14-1.03 Ford, Matthew: Buckling and collapse of the bicycle wheel	TS.FS01-1.03 (INVITED) Page, John: Acoustic bubble metascreen for broadband superabsorption of waterborne acoustic waves	TS.FS03-1.03 (INVITED) Lu, Hua: Determination of Critical Loads for Embedded RF PA Assembly
TS.SM10-1.04 Du, Chaowei: The role of sub-structure boundaries on lath martensite plasticity	TS.SM14-1.04 Formica, Giovanni: Nanocomposite microbeams for sensing applications	TS.FS01-1.04 (INVITED) Sánchez-Dehesa, José: Rainbow trapping of torsional waves in a chirped rectangular beam	TS.FS03-1.04 Csernák, Gábor: Evaluation of mechanical contact between metallic surfaces
TS.SM10-1.05 Hochrainer, Thomas: Small scale plasticity simulated with continuum dislocation dynamics	TS.SM14-1.05 Galich, Pavel: Elastic wave propagation in highly deformable layered materials	TS.FS01-1.05 Abaid, Nicole: Passive Localization Inspired by Bats in Silent Flight	TS.FS03-1.05 Hartmann, Stefan: Strain and strain-rate dermination using digital image correlation
TS.SM10-1.06 Zhuang, Zhuo: Discrete dislocation-based crystal plasticity at micron-nano scales	TS.SM14-1.06 Hadrien, Bense: Instabilities in dielectric elastomer plates	TS.FS01-1.06 Attendu, Jean-Michel: Time-domain NAH as a means to prevent exposition to harmful industrial impact noises	TS.FS03-1.06 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
MS01 - Bypass Transition <i>Chair: Dennice Gayme</i>	MS04 - Nonlinear Dynamics of Engineering Systems – Nonlinear Phenomena in Mechanical and Structural Systems <i>Chair: H. Yabuno & A. Bajaj</i>	MS05 - Soft Solid Active Matter <i>Chair: Vikram Deshpande</i>	MS06 - Topology Optimization – transient and stability problems <i>Chair: Grégoire van Keulen</i>
TS.MS01-3.01 Cossu, Carlo: Exact invariant solutions for coherent turbulent motions in Couette and Poiseuille flows	TS.MS04-3.01 Ross, Shane: Escape from potential wells in multi-dimensional experimental systems	TS.MS05-3.01 Govindjee, Sanjay: Microsphere modeling with full relaxation and internal evolutionary mechanisms	TS.MS06-3.01 Van Keulen, Fred: Topology optimization for transient thermo-mechanical problems
TS.MS01-3.02 Lu, Jianzhou: Spatio-temporal evolution of isolated turbulent bands in channel flows	TS.MS04-3.02 Habib, Giuseppe: Passive linearization of nonlinear system resonances	TS.MS05-3.02 Purohit, Prashant: Membrane Tension Controls Kinetics of Neuron Growth	TS.MS06-3.02 Van Der Kolk, Max: Multi-material topology optimization of viscoelastically damped structures.
TS.MS01-3.03 Klotz, Lukas: Transition to Turbulence in Plane Couette-Poiseuille Flow	TS.MS04-3.03 Fidlin, Alexander: On the Strongly Nonlinear Resonance of a Rotor with a Self-balancing Device	TS.MS05-3.03 Zhang, Yihui: Soft network materials with deterministic and bio-inspired designs	TS.MS06-3.03 Blasques, José Pedro: Design of beam cross sections with extreme structural properties using topology optimization
TS.MS01-3.04 Katasonov, Mikhail: Origination of wave packets at localized streaks	TS.MS04-3.04 Steindl, Alois: Nonlinear Oscillations of a Belt Drive	TS.MS05-3.04 Hu, Yuhang: Dynamic indentation: A simple method to characterize poroelasticity of gels in micron scale	TS.MS06-3.04 Pedersen, Niels: On bifurcation sensitivities and stability optimization based on local sub-domain eigenvalues
TS.MS01-3.05 Hack, Philipp: Characterization and prediction of streak breakdown using machine learning	TS.MS04-3.05 Abdel-Rahman, Elhab: Strange attractors observed in electrostatic MEMS actuators	TS.MS05-3.05 Xu, Feng: Cell alignment fabrication using stretchable hydrogels with programmable strain gradients	TS.MS06-3.05 Aage, Niels: Efficient transient topology optimization through dynamic substructuring
	TS.MS04-3.06 Shitikova, Marina: Difference combinational internal resonance in nonlinear vibrations of thin plates	TS.MS05-3.06 Li, Tiefeng: Mechanical instabilities and multi-functions of soft active structures in soft robots	TS.MS06-3.06 Wallin, Mathias: Topology optimization for finite strain plasticity

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MONDAY, AUGUST 22 | LATE AFTERNOON

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

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

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MONDAY, AUGUST 22 | LATE AFTERNOON

15:40-16:00

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17:20-17:40

TS.SM05-2 519b

SM05 - Fracture Mechanics
Chair: Krishnaswamy Ravi-Chandar

TS.SM05-2.01

Larsen, Chris: Mathematical difficulties in cohesive fracture evolution

TS.SM05-2.02

Landis, Chad: A phase-field model for fluid driven cracks in porous media

TS.SM05-2.03

Bobaru, Florin: Peridynamic modelling of dynamic fracture and fatigue cracking

TS.SM05-2.04

Delaume, Eric: Local adaptive refinement method for the fracture of heterogeneous materials

TS.SM05-2.05

Jain, Shruti: Interface Strength Versus Fracture Energy Driven Fracture in Thin Film Transfer

TS.SM05-2.06

Shen, Yongxing: Universal meshes for a crack with triple junctions

TS.SM06-2 518a

SM06 - Geophysics and Geomechanics
Chair: Yuri Fialko

TS.SM06-2.01 (INVITED)

Hatano, Takahiro: Rate and state friction law as derived from atomistic processes at asperities

TS.SM06-2.02

Perry, Stephen: Reproducing magnitude-invariant stress drops in fault models with thermal pressurization

TS.SM06-2.03

Putelat, Thibaut: Nonlinear dynamics of frictional slip localization

TS.SM06-2.04

Remij, Ernst: Hydraulic fracture propagation under the influence of natural fractures

TS.SM06-2.05

Rivas, Endrina: Shear dilation using the extended finite element method

TS.SM06-2.06

Rubino, Vito: Dynamic visualization of supershear ruptures

TS.SM07-2 515a

SM07 - Impact Mechanics and Wave Propagation
Chair: Vitali F. Nesterenko

TS.SM07-2.01 (INVITED)

Morozov, Nikita: The Lavrentiev-Ishlinsky problem of transverse vibration of rods

TS.SM07-2.02

Gambarotta, Luigi: Wave Propagation in Lattice Metamaterials with Viscoelastic Inertial Resonators

TS.SM07-2.03

Metrikine, Andrei: Transition radiation in continua excited by a moving load

TS.SM07-2.04

Pal, Raj Kumar: Effect of large deformation pre-loads on linear wave propagation in hexagonal lattices

TS.SM07-2.05

Wang, Xiaodong: Modelling and Simulation of Elastic Waves in Periodic Media Using Pseudo-Incident Wave Method

TS.SM07-2.06

Seisson, Gabriel: POREQST extension to shock-release hysteresis of graphite

TS.SM09-2 518b

SM09 - Phase and Chemical Transformations and Thermomechanical Phenomena
Chair: Ryan Elliott

TS.SM09-2.01

Elliott, Ryan: Reversible temperature- and stress-induced martensitic transitions in crystals

TS.SM09-2.02

Biggs, Daniel: Periodic and propagating instabilities in superelastic NiTi wire twists

TS.SM09-2.03

Charkaluk, Eric: Full-field based thermomechanical determination of elastoplastic parameters in polycrystals

TS.SM09-2.04

Xia, Minglu: Jump phenomena of thermomechanical responses for nonlinear vibration with NITI

TS.SM09-2.05

Le, Khanh Chau: Dislocation mechanism of microstructural changes in ductile single crystals

TS.SM10-2 518c	TS.SM14-2 515bc	TS.FS01-2 522bc	TS.FS03-2 519a
SM10 - Scales Effects in Materials <i>Chair: Samuel Forest</i>	SM14 - Stability of Structures <i>Chair: Davide Bigoni</i>	FS01 - Acoustics <i>Chair: John Page</i>	FS03 - Experimental Methods in Mechanics <i>Chair: Philippe Petitjeans</i>
TS.SM10-2.01 Voyiadjis, George: Large scale atomistic simulation of size effects during nanoindentation	TS.SM14-2.01 (INVITED) Paidoussis, Michael P.: Dynamics of long tubular cantilevers in axial flow	TS.FS01-2.01 Buchta, David: Mechanisms of jet crackle	TS.FS03-2.01 (INVITED) Volk, Romain: A shadow PTV technique for particle tracking in an inhomogeneous turbulent flow
TS.SM10-2.02 Lu, Guoxing: Investigation into the behaviour of the graded cellular foam under impact	TS.SM14-2.02 Hamouche, Walid: Non-linear dynamic actuation of multistable shells	TS.FS01-2.02 Fotsing, Edith Roland: Acoustic properties of porous PLA monoliths produced via nonsolvent induced phase separation	TS.FS03-2.02 Kopp, Gregory A.: Evaluation of mean pressure field above a roof using PIV data and a 2D interpolation algorithm
TS.SM10-2.03 Piccolroaz, Andrea: Dispersion and localization in flexural waves supported by Rayleigh beam structures	TS.SM14-2.03 Hoang, Tuan: Stability and buckling of a flat circular, intrinsically curved filament spanned by a fluid film	TS.FS01-2.03 Gregory, Alastair: Modelling biological phenomena with rocket balloon buzz	TS.FS03-2.03 Tripuraneni, Rajasekhar: Real-time measurement of biaxial modulus of GEnode for li-ion batteries
TS.SM10-2.04 Legarth, Brian: Plastic size-effects on a mode I loaded crack	TS.SM14-2.04 Kochmann, Dennis: Transition waves in periodic multi-stable mechanical systems	TS.FS01-2.04 Reichert, Peter: Acoustophoretic Handling of C. elegans in Microfluidic Channels	TS.FS03-2.04 Trachsel, Mathis: Friction measurements on small journal bearings
TS.SM10-2.05 Martínez-Pañeda, Emilio: Strain gradient plasticity beyond micron-scale applications: Fracture and damage modelization	TS.SM14-2.05 Lazarus, Arnaud: Modal analysis of structures in periodic states	TS.FS01-2.05 Rodriguez-Lopez, Eduardo: Flow Field and Acoustic Study of the Flow in Various Wall-Mounted Porous Fences	TS.FS03-2.05 Stepan, Gabor: Digital Effects in Hardware-in-the-Loop Experiments of Stick-Slip Phenomena
TS.SM10-2.06 Gerberich, William: Enhanced fracture toughness in silicon at small scale	TS.SM14-2.06 Lestringant, Claire: Instabilities of a compressed hyper elastic prism: Competition between wrinkles and creases	TS.FS01-2.06 Schmidt, Oliver: Global stability and resolvent analysis of sound emission in a high-Reynolds number turbulent jet	TS.FS03-2.06 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
Sectional Lecture in Fluids Chair: <i>Laurent Mydlarski</i> SL.FM-1 – Colonius, Tim: Models of coherent structures in turbulent jets and their radiated sound <i>Room 520abc</i>	Sectional Lecture in Fluids Chair: <i>Stavros Tavoularis</i> SL.FM-3 – Jimenez, Javier: Coherent structures in wall-bounded turbulence <i>Room 520abc</i>
Sectional Lecture in Fluids Chair: <i>Bruno Eckhardt</i> SL.FM-2 – Smits, Alexander: Turbulent drag reduction using liquid-infused surfaces <i>Room 525ab</i>	Sectional Lecture in Solids Chair: <i>Miles B Rubin</i> SL.SM-2 – Hunter, Peter: Biomechanics and the physiome project <i>Room 516cde</i>
Sectional Lecture in Solids Chair: <i>Leslie Banks-Sills</i> SL.SM-1 – Audoly, Basile: The non-linear mechanics of slender deformable bodies <i>Room 517d</i>	Sectional Lecture in Solids Chair: <i>Stelios Kyriakides</i> SL.SM-3 – Fang, Daining: Deformation and Fracture of Electromagnetic Thin Films and Laminates under Multi-field Loading <i>Room 517d</i>
Sectional Lecture in Fluids-Solids Chair: <i>Peter Eberhard</i> SL.FS-1 – Hu, Haiyan: Soft machines: challenges to computational dynamics <i>Room 516cde</i>	Sectional Lecture in Fluids-Solids Chair: <i>Bernhard Schrefler</i> SL.FS-2 – Farhat, Charbel: Computational framework for multi-material FSI, shocks, turbulence and fracture <i>Room 525ab</i>

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TUESDAY, AUGUST 23 | MORNING

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TUESDAY, AUGUST 23 | MORNING

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TS.MS04-4	517d
MS04 - Nonlinear Dynamics of Engineering Systems – Systems with Time Delay and Non-Smooth Systems <i>Chair: F. Pfeiffer & O. Gendelman</i>	
TS.MS04-4.01	Rand, Richard: On Nonlinear Differential Equations with Delayed Self-Feedback
TS.MS04-4.02	Radons, Günter: Analysis of systems with state-dependent delays and applications in metal cutting
TS.MS04-4.03	Molnar, Tamas: Higher-order estimation of limit cycle amplitude in metal cutting
TS.MS04-4.04	Wang, Zaihua: Delay effect on motion control of a two-wheeled inverted pendulum
TS.MS04-4.05	Cao, Qingjie: Dynamical Behaviours of an Archetypal Self-excited SD Oscillator
TS.MS04-4.06	Wiercigroch, Marian: Analysis of forward and backward whirls in drilling

TS.MS05-4	516cde
MS05 - Soft Solid Active Matter <i>Chair: Xuanhe Zhao</i>	
TS.MS05-4.01	Huang, Rui: Ion-induced swelling and volume phase transition of polyelectrolyte gels
TS.MS05-4.02	Chester, Shawn: Combined Modeling and Experiments Polymeric Gels
TS.MS05-4.03	Nardinocchi, Paola: On the effects of cavitation in hydrogel-based structures
TS.MS05-4.04	Duda, Fernando: On pressure-driven flow through a gel-filled channel
TS.MS05-4.05	Brun, Pierre-Thomas: Elastocapillary swelling: When coalesced structures curl apart
TS.MS05-4.06	Feng, Xiangchao: Highly stretchable double-network composite

TS.MS06-4	516b
MS06 - Topology Optimization – Formulations and emerging problems <i>Chair: D. Tortorelli & J. Guest</i>	
TS.MS06-4.01	Fernandez-Perez, Miguel: Structural topology optimization of wind turbine blades fabricated by additive manufacturing
TS.MS06-4.02	Noël, Lise: Structural design under damage constraints with XFEM and level sets.
TS.MS06-4.03	Vié, Jean-Léopold: A second-order method for structural shape optimization with the level-set method
TS.MS06-4.04	Wadbro, Eddie: On nonlinear filters in topology optimization
TS.MS06-4.05	Rojas Labanda, Susana: On slowly moving boundaries in density based structural topology optimization
TS.MS06-4.06	Qian, Xiaoping: Topology Optimization for Additive Manufacturing: Considering Support Structures

TS.FM01-2	520abc
FM01 - Biological Fluid Mechanics <i>Chair: Jonathan Freund</i>	
TS.FM01-2.01	Niazi, Erfan: Development of an Experimental Correlation for Red Blood Cells Aggregation Rate
TS.FM01-2.02	Wang, Zhen: Motion of a spherical capsule in branched tube flow with finite inertia
TS.FM01-2.03	Salsac, Anne-Virginie: Motion of an oblate capsule in simple shear flow
TS.FM01-2.04	Vejdani, Hamid: The dynamical reasons for maneuverability of bats
TS.FM01-2.05	Kolomenskiy, Dmitry: Dynamics of bumblebees flying in a vortex street
TS.FM01-2.06	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
FM02 - Boundary Layers <i>Chair: Yvan Maciel</i>	FM06 - Drops, Bubbles and Multiphase Flows <i>Chair: John Lister</i>	FM07 - Flow Instability and Transition <i>Chair: Carlo Cossu</i>	FM12 - Non-Newtonian and Complex Fluids <i>Chair: Gareth McKinley</i>
TS.FM02-3.01 (INVITED) Flack, Karen: Prediction of frictional drag in the transitionally rough regime	TS.FM06-3.01 Das, Debasish: Dynamics of leaky dielectric drops in strong electric fields: Boundary element simulations	TS.FM07-1.01 (INVITED) Tuckerman, Laurette: Can frequencies be predicted from mean flows? RZIF for thermosolutal convection	TS.FM12-3.01 Frigaard, Ian: Creeping flow around particles in large yield stress Bingham fluids
TS.FM02-3.02 Pathikonda, Gokul: Inner-Outer Interactions in a Turbulent Boundary Layer Overlying Complex Roughness	TS.FM06-3.02 Xiang, Yaolei: Wetting transition of submerged structures under hydrostatic and flow conditions	TS.FM07-1.02 Sipp, Denis: Mathematical foundations for mean flow stability analysis	TS.FM12-3.02 Amiri, Amin: Displacement flows of viscoplastic fluids in an oscillating pipe
TS.FM02-3.03 Klaas, Michael: Frequency dependence of drag reduction in a wavy surface turbulent boundary layer	TS.FM06-3.03 (INVITED) Cantat, Isabelle: Velocity measurements in draining foam films	TS.FM07-1.03 Kambe, Tsutomu: New Scenario of Turbulence Theory and Wall Turbulence	TS.FM12-3.03 Jeon, Jaewoo: Displacing yield stress fluid by Newtonian fluid in a vertical circular channel
TS.FM02-3.04 Maciel, Yvan: Sweeps and ejections in ZPG and strong APG turbulent boundary layers	TS.FM06-3.04 Lohse, Detlef: Role of natural convection in the dissolution of sessile droplets	TS.FM07-1.04 Tao, Jianjun: Helical-wave instabilities of an annulus flow in a helical magnetic field	TS.FM12-3.04 Roustaei, Ali: Darcy's law and critical pressure drops for yield stress fracture flows
TS.FM02-3.05 Örlü, Ramis: History effects in adverse pressure gradient turbulent boundary layers	TS.FM06-3.05 Pandey, Anupam: Elasto-capillary interaction of liquid drops	TS.FM07-1.05 Henningson, Dan S: Bypass transition in boundary layers	TS.FM12-3.05 Jalaal, Maziya: Slip and no-slip of carbopol droplets: A direct experimental observation
TS.FM02-3.06 Le Floch, Arnaud: Effect of boundary-layer superstructures on separation bubble unsteadiness	TS.FM06-3.06 Steen, Paul: Freezing vortex rings into shaped particles		TS.FM12-3.06 Karimfazi, Ida: Pulsing thermal plumes in yield stress fluids

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TS.FM13-3 520d

FM13 - Computational Fluid Dynamics
Chair: Paolo Luchini

TS.FM13-3.01

Shen, Yiqing: High Order Global Smoothness Indicator for Improving the Fifth-order Weno-z Scheme

TS.FM13-3.02

Ringue, Nicolas: Optimization-based anisotropic mesh-polynomial adaptation for high-order methods

TS.FM13-3.03

Modesti, Davide: Efficient Algorithm for DNS of Compressible Turbulent Wall-Bounded Flows

TS.FM13-3.04

Sakib, Md Nazmus: Spectrally-accurate immersed boundary conditions method for 3-D Navier-Stokes equations

TS.FM13-3.05

Lv, Jun-Ming: Numerical study on radiative heat for hyper-velocity re-entry probes

TS.FM13-3.06

Gelfgat, Alexander: On acceleration of Krylov-subspace Newton and Arnoldi iterations for incompressible CFD

TS.FM14-3 524a

FM14 - Turbulence
Chair: Laurent Mydlarski

TS.FM14-3.01 (INVITED)

Irvine, William: Conservation and flow of helicity across scales in reconnecting vortex knots and links

TS.FM14-3.02

Sahoo, Ganapati: Effects of helicity on the energy transfer in three-dimensional turbulence

TS.FM14-3.03

Obligado, Martin: Interaction of two high Reynolds number axisymmetric turbulent wakes

TS.FM14-3.04 (INVITED)

Yeung, Pui-Kuen (P.K): Extreme Events and Acceleration Statistics at High Reynolds Number

TS.FM14-3.05

Le Gal, Patrice: Rotating turbulence in a rotor/stator cavity at high Reynolds number

TS.FM14-3.06

Osawa, Kosuke: Flow structure and torque transition process of turbulent Taylor-Couette flow

TS.FM16-3 521abc

FM16 - Waves in Fluids
Chair: Didier Clamond

TS.FM16-3.01 (INVITED)

Ardhuin, Fabrice: Observing and understanding short gravity waves

TS.FM16-3.02 (INVITED)

Shrira, Victor: Spectral evolution of random wave fields: Kinetic equations vs. direct numerical simulations

TS.FM16-3.03

Veron, Fabrice: Laboratory measurements of the inception and evolution of centimeter-scale Langmuir turbulence

TS.FM16-3.04

Clamond, Didier: Dispersion-improved fully nonlinear shallow water model

TS.FM16-3.05

Malecha, Ziemowit: Baroclinically-driven acoustic streaming

TS.FM16-3.06

Albrecht, Thomas: Components of mean streaming flow in a precessing cylinder at small nutation angles

TS.SM04-3 516a

SM04 - Elasticity
Chair: Changqing Chen

TS.SM04-3.01 (INVITED)

Miehe, Christian: Variational phase field models for ductile fracture at finite strain

TS.SM04-3.02

Berdichevsky, Victor: The variational principle for probabilistic measure, Hashin-Shtrikman bounds and beyond

TS.SM04-3.03

Buryachenko, Valeriy: Random structure composites with nonlocal thermoelastic properties of constituents

TS.SM04-3.04

Rudykh, Stephan: Micromechanics of magneto- and electro-active soft composites

TS.SM04-3.05

Podolskaya, Ekaterina: Elastic fields and effective properties of triangular lattice with vacancies

TS.SM04-3.06

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	
SM05 - Fracture Mechanics <i>Chair: Laurent Ponson</i>	SM06 - Geophysics and Geomechanics <i>Chair: Takahiro Hatano</i>	SM07 - Impact Mechanics and Wave Propagation <i>Chair: Nikita Morozov</i>	SM09 - Phase and Chemical Transformations and Thermo-mechanical Phenomena <i>Chair: Stewart Silling</i>	M
TS.SM05-3.01 Antipov, Yuri: Crack growth at nonuniform speed beneath the boundary of a half-plane	TS.SM06-3.01 (INVITED) Rice, James: Thermo-hydro-mechanical processes stabilizing antarctic ice stream margins	TS.SM07-3.01 (INVITED) Nesterenko, Vitali F.: Strongly nonlinear waves generated by impact in weakly and strongly dissipative sonic vacuum	TS.SM09-3.01 (INVITED) Levitas, Valery: Phase field approach to phase transformations, twinning, dislocations, and their interaction	T
TS.SM05-3.02 Unger, David: Linear elastic solutions for slotted plates revisited	TS.SM06-3.02 Shigeno, Naoyuki: Dynamic impact-induced fracture development in ice spheres	TS.SM07-3.02 Salupere, Andrus: Solitons and solitonic structures: What is visible and what is hidden	TS.SM09-3.02 Silling, Stewart: The thermodynamic form of peridynamics with application to phase transformations	W
TS.SM05-3.03 Coré, Arthur: Experimental and numerical investigation of hollow spheres subjected to fracture	TS.SM06-3.03 Svetlizky, Ilya: Shear stress peak radiated ahead of rapidly accelerating frictional rupture	TS.SM07-3.03 Samsonov, Alexander: Bulk Strain Solitons in Lengthy Solids: From Phenomenon to a Work Tool	TS.SM09-3.03 Ahluwalia, Rajeev: Phase field modeling of martensitic transformations in nanocrystalline materials	T
TS.SM05-3.04 Walton, Jay: Plane Strain Fracture with Surface Mechanics: Non-Local Boundary Regularization	TS.SM06-3.04 Touhei, Terumi: Near-field Equation for Quantitative Evaluation of Fluctuations	TS.SM07-3.04 Chen, Zhen: Staggered MD and MPM for Multiscale Simulation of Impact Responses	TS.SM09-3.04 Jiang, Dongjie: Modelling of axial buckling and recovery of pseudoelastic NiTi tubes	F
TS.SM05-3.05 Roman, Benoit: Intertwined spiraling crack path in perforated sheets	TS.SM06-3.05 Vilotte, Jean-Pierre: Rupture dynamics along bimaterial interfaces	TS.SM07-3.05 Wang, Lifeng: Harnessing structural hierarchy to design lightweight phononic crystals	TS.SM09-3.05 Song, Zilong: An analytical model for phase transitions of an SMA wire under uniaxial tension	
TS.SM05-3.06 Curtin, William: Crack tip blunting and cleavage under dynamic conditions	TS.SM06-3.06 York, Jason: On the effects of plasticity in hydraulic fractures	TS.SM07-3.06 Van Gemmeren, Valentin: Energy focusing using the dispersion of flexural waves	TS.SM09-3.06 Wheeler, Robert: Actuator lifetime predictions for Ni60Ti40 shape memory alloy plate actuators	
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TUESDAY, AUGUST 23 | MORNING

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TS.SM10-3 518c	TS.SM14-3 515bc	TS.FS01-3 522bc	TS.FS03-3 519a
SM10 - Sizescale Effects in Materials <i>Chair: Marc Geers</i>	SM14 - Stability of Structures <i>Chair: Suresh Shrivastava</i>	FS01 - Acoustics <i>Chair: Luc Mongeau</i>	FS03 - Experimental Methods in Mechanics <i>Chair: Yilan Kang</i>
TS.SM10-3.01 (INVITED) Massart, Thierry J.: Ultra-High Ductility of TRIP-Assisted Seels Modelled by Gradient Plasticity	TS.SM14-3.01 Shrivastava, Suresh: Plastic bifurcation paradox for circular and rectangular plates	TS.FS01-3.01 Lamprecht, Andreas: 3D characterization of acoustofluidic force fields in the fN range	TS.FS03-3.01 (INVITED) Xie, Huimin: Micro-speckle/grating by FIB deposition and their application to deformation measurement
TS.SM10-3.02 Asgharzadeh, Mohammadali: Continuum analysis of precipitation hardening using SGP theory	TS.SM14-3.02 Martin, Maverick: Tape spring rod model as a regularised Ericksen's bar involving propagating instabilities	TS.FS01-3.02 Bailly, Christophe: Experimental investigation and modelling of the boundary-layer wall pressure spectrum	TS.FS03-3.02 (INVITED) Wang, Wei-Chung: A modulo pi temporal phase unwrapping theory in photoelasticity
TS.SM10-3.03 Stupkiewicz, Stanislaw: Phase-field study of size effects in martensitic microstructures	TS.SM14-3.03 Mora, Serge: Gravity driven instability in horizontal elastic layers	TS.FS01-3.03 (INVITED) Noiray, Nicolas: Stochastic aspects of thermoacoustic instabilities in combustion chambers	TS.FS03-3.03 Xu, Chaochen: An experimental investigation on interfacial properties of graphene: Size effect
TS.SM10-3.04 Niordson, Christian: Finite strain gradient plasticity with application to micron scale void growth	TS.SM14-3.04 Plucinsky, Paul: Interplay of wrinkling and microstructure in nematic elastomer membranes	TS.FS01-3.04 Illingworth, Simon: Robust feedback control of thermoacoustic oscillations	TS.FS03-3.04 Qiu, Wei: Residual stress analysis in si-based multi-layer heterostructure by micro-raman
TS.SM10-3.05 Ling, Chao: Modelling size effects on void growth and coalescence in single crystals	TS.SM14-3.05 Psarra, Erato: Instability of MRE film - substrate block under magneto - mechanical loadings	TS.FS01-3.05 Juniper, Matthew: Combined experimental and adjoint-based sensitivity analysis in thermoacoustics	TS.FS03-3.05 Wu, Shangquan: Cell viability and rapid screening anti-cancer drug based on nanomechanical fluctuation
TS.SM10-3.06 Nielsen, Kim Lau: Size Effects in Void Coalescence	TS.SM14-3.06 Qu, Shaoxing: Wrinkling behavior of an inflated dielectric elastomer balloon	TS.FS01-3.06 Bennewitz, John: Periodic Partial Extinction in Acoustically Coupled Fuel Droplet Combustion	TS.FS03-3.06 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 | Drozdetzskaya, 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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TUESDAY, AUGUST 23

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, Igor: 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

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PO.SM07-1.14.277 | Qiao, Chuan: Energy absorption of a novel self-locked tube system

PO.SM07-1.15.278 | Rai, Nirmal Kumar: Sensitivity analysis of energetic materials using an Eulerian solver SCIMITAR3D

PO.SM07-1.16.279 | Shi, Yulin: Semismooth Newton solver for periodically-forced solutions to a unilateral contact formulation

PO.SM07-1.17.280 | Vaz-Romero Santero, Alvaro: On the interplay between material flaws and dynamic necking

PO.SM07-1.18.281 | Wang, Yi-Ze: Longitudinal wave localization in phononic crystals with negative capacitance

PO.SM07-1.19.282 | Yu, Huangchao: The coupled dynamic behavior of layered piezoelectric structures.

SM09 - Phase and Chemical Transformations and Thermomechanical Phenomena

Room: 518b

PO.SM09-1.01.284 | Demmouche, Younes: Martensite and temperature effect on the mechanical behavior of a TRIP stainless steel

PO.SM09-1.02.285 | Du, Haiyang: Shape recovery properties of shape memory polymer tube under torsion deformation

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PO.SM09-1.03.286 | Tsvetkov, Denis: Energy distribution in one-dimensional crystal

PO.SM09-1.04.287 | Yin, Bingbing: Finite element simulation of TGO growth stress in TBC system considering large deformation

PO.SM09-1.05.288 | Zemskov, Andrei: General algorithm of solution of 2-dimension problems of mechano-diffusion

PO.SM09-1.06.289 | Zhao, Xian Feng: The attractive force and repulsive force of a HTS/PM system under field cooling condition

SM10 - Sizescale Effects in Materials

Room: 518c

PO.SM10-1.01.291 | Bae, Suwon: Molecular dynamics investigation of single chain polymer nanoparticles

PO.SM10-1.02.292 | Bormann, Franz: Numerical model for dislocation transmission across a phase boundary

PO.SM10-1.03.293 | Liang, Lihong: Size Effect of Mechanical Behavior of Coating Systems

PO.SM10-1.04.294 | Liu, Mingchao: Surface effect on the adsorption-induced deformation of ordered porous material

PO.SM10-1.05.295 | Ma, Hansong: Influence of nanoinclusion's size-dependence on composite with micropolar matrix

PO.SM10-1.06.296 | Ma, Yanhui: Size-dependent and tunable mechanical properties of stochastic fibrous structures

PO.SM10-1.07.297 | Mohammed Ameen, Maqsood: Higher-order asymptotic homogenization of periodic materials at low scale separations

PO.SM10-1.08.298 | Peng, Xiang-Long: Modeling surface penetration by dislocation pileup model with image effect

PO.SM10-1.09.299 | Pouriayeali, Habib: A study of grain and grain-boundaries based on a gradient crystal-plasticity model

PO.SM10-1.10.300 | Sargsyan, Samvel: Geometrically nonlinear theory of micropolar elastic thin plates and shells

PO.SM10-1.11.301 | Sigaeva, Taisiya: Effect of the surface on hyperelastic properties of materials at smaller scales

PO.SM10-1.12.302 | Solyaev, Yury: Surface effects in the pure bending problem in the theory of elastic materials with voids

PO.SM10-1.13.303 | Verma, Deepti: Sizescale Effects in Bending Flexibility of Phosphorene and its 2D Allotropes

SM14 - Stability of Structures (co-located with FS-09)**Room:** 515bc

PO.SM14-1.01.305 | [Aranda-Iglesias, Damian](#): Oscillatory behaviour of compressible hyperelastic shells subjected to dynamic inflation

PO.SM14-1.02.306 | [Borkowski, Łukasz](#): Numerical analysis of dynamic stability of plate by using tools used in dynamics

PO.SM14-1.03.307 | [Cottanceau, Emmanuel](#): A finite element/quaternion/asymptotic numerical method for the 3D simulation of flexible cables

PO.SM14-1.04.308 | [Darabi, Mehdi](#): Dynamic Instability of Antisymmetric Cross-ply Laminated Composite Cylindrical Shell

PO.SM14-1.05.309 | [Hollenbeck, Derek](#): Effect of Non-Linear Constitutive Law on Column Buckling

PO.SM14-1.06.310 | [Kento, Okui](#): Study on designing the superior crushing response of lightweight egg-box panel

PO.SM14-1.07.311 | [Kesari, Haneesh](#): Enhancement of buckling strength in the tapered skeletal elements of marine sponges

PO.SM14-1.08.312 | [Lerbet, Jean](#): Kinematic structural stability

PO.SM14-1.09.313 | [Li, Bo](#): Stability analysis of uniform deployable structure in compression

PO.SM14-1.10.314 | [Liu, Yang](#): Post-buckling analysis of a hyperelastic layer-substrate structure under compression

PO.SM14-1.11.315 | [Liu, Yuanpeng](#): Torsional wrinkling behaviour of annular thin elastic sheets

PO.SM14-1.12.316 | [Renaud, Sylvain](#): A new approach to assess the dynamic sliding stability of structures: Application to concrete dams

PO.SM14-1.13.317 | [Seraj, Saemul](#): Dynamic instability of doubly-tapered rotating laminated composite beams

PO.SM14-1.14.318 | [Singler, Timothy](#): Thin film wrinkling: A solid-liquid interface instability

PO.SM14-1.15.319 | [Slesarenko, Viacheslav](#): Formation Of Wavy Interfaces In Layered Visco-Hyperelastic Composites

PO.SM14-1.16.320 | [Tao, Qiang](#): Bending capacity of inflated mesh-reinforced-membrane beam

PO.SM14-1.17.321 | [Vaziri, Ashkan](#): Highly deployable multifunctional cellular structures with hierarchy

PO.SM14-1.18.322 | [Yin, Jie](#): Harnessing directed buckling for switchable conductive pathway

PO.SM14-1.19.323 | [Zheng, Bin](#): Buckling distortion of aluminum plates under non-uniform welding stress field

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PO.SM14-1.20.324 | Zou, Shibo: Unfolding process of coiling fibers made by instability-assisted fused deposition modeling

FS01 - Acoustics (co-located with FS02)

Room: 522bc

PO.FS01-1.01.326 | Baasch, Thierry: Simulating acoustofluidic particle interactions and unilateral contacts

PO.FS01-1.02.327 | Guillermic, Reine-Marie: PDMS-based acoustic impedance-matched material in water

PO.FS01-1.03.328 | Hu, Gengkai: Broadband pentamode acoustic cloak using single phase solid

PO.FS01-1.04.329 | Langthjem, Mikael: Flow-acoustic interaction in an expansion chamber-pipe system

PO.FS01-1.05.330 | Misawa, Ryota: A Biem for Transmission Resonance Problems for Elastic Waveguides

PO.FS01-1.06.331 | Qu, Yegao: Nonlinear vibration and sound radiation from skin/core debonded sandwich plates

PO.FS01-1.07.332 | Schifferli, Yasna: Atmospheric and Cosmic Infrasound Detection Techniques.

PO.FS01-1.08.333 | Sugimoto, Nobumasa: Asymptotic theories of nonlinear thermoacoustic waves in a gas-filled channel

PO.FS01-1.09.334 | Wang, Yue-Sheng: Enhanced acousto-optical coupling of surface waves in an air-slot phoxonic crystal cavity

PO.FS01-1.10.335 | Xu, Chen: Passive control of flow and noise around a circular cylinder covered with porous material

FS02 - Exascale Computing (co-located with FS01)

Room: 522bc

PO.FS02-1.01.337 | Ostilla Monico, Rodolfo: AFiD: A multipurpose and versatile tool for turbulence simulations

PO.FS02-1.02.338 | Subramaniam, Akshay: Petascale simulations of shock-induced multi-material mixing

PO.FS02-1.03.339 | Trikuta Srinath, Ashwin: A novel strategy for compact finite difference evaluation on gpu-accelerated clusters

PO.FS02-1.04.340 | Yamada, Tomonori: Balancing domain decomposition method on additive Schwartz framework

FS03 - Experimental Methods in Mechanics (co-located with MS03 and FS10)
Room: 519a

PO.FS03-1.01.342 | Mikkelsen, Lars: Residual strains and their relation to the fatigue damage evolution in composite materials

PO.FS03-1.03.344 | Shang, Yibo: In-situ SEM study of short fatigue crack propagation behavior in a dissimilar metal welded joint of nuclear power plant

FS09 - Foams and Cellular Materials (co-located with SM-14)
Room: 515bc

PO.FS09-1.01.346 | Abueidda, Diab: Elasticity and Conductivity of Foams Based on Triply Periodic Minimal Surfaces

PO.FS09-1.02.347 | Lu, Tianjian: Sandwich panel with honeycomb-corrugation hybrid core: evaluation of concept

PO.FS09-1.03.348 | Ma, Li: Design and Mechanical Response of Assembled 3D Periodic Auxetic Cellular Structures

FS10 - Education in Mechanics (co-located with FS03 and MS03)
Room: 519a

PO.FS10-1.01.350 | Da Silva Neto, José Luiz: Optimization of the dynamics of a constant-temperature anemometer

PO.FS10-1.02.351 | Shrivastava, Gyan: Fluid Mechanics Education at The University of The West Indies

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TS.MS04-5 517d

MS04 - Nonlinear Dynamics of Engineering Systems – Nonlinear Dynamics in MEMS and NEMS
Chair: M. Amabili & J. Warminski

TS.MS04-5.01

Yabuno, Hiroshi: Self-excited microcantilevers for sensing applications

TS.MS04-5.02

Dou, Suguang: Tailoring nonlinear dynamics of microbeam resonators with electrostatic actuation

TS.MS04-5.03

Park, Sangtak: Evidence of an intermittency route to chaos in electrostatic mems

TS.MS04-5.04

Kalafut, Devin: Multistability of a cantilever MEMS/NEMS capacitive switch model

TS.MS04-5.05

Ribeiro, Pedro: Non-linear Modes of Vibration of Cnts

TS.MS04-5.06

Lamarque, Claude Henri: Symmetry-breaking in a threenanomechanical-resonator array for mass detection

TS.MS05-5 516cde

MS05 - Soft Solid Active Matter
Chair: Maria Eziel-Jezewska

TS.MS05-5.01

Liu, Ling: Computational Modelling of Light-switchable Surface Topographies Using Liquid Crystal Polymers

TS.MS05-5.02

Neukirch, Sebastien: Coiling a fiber inside a drop provides a highly stretchable device

TS.MS05-5.03

Lu, Tongqing: Nonlinear characteristics of dielectric elastomers under electromechanical coupling loading

TS.MS05-5.04

Zhu, Jian: Voltage-induced buckling and wrinkling in a dielectric elastomer

TS.MS05-5.05

Jandron, Michael: Exploring band gap tunability in phononic crystals using dielectric elastomers

TS.MS05-5.06

Liu, Taixiang: Research on the microstructure and the property of magnetorheological elastomer

TS.FM02-4 520e

FM02 - Boundary Layers
Chair: Michael Gaster

TS.FM02-4.01 (INVITED)

Reed, Helen: Hypersonic boundary layer instabilities

TS.FM02-4.02

Wu, Xuesong: Response and receptivity of a hypersonic boundary layer to free-stream disturbances

TS.FM02-4.03

Paredes, Pedro: Interaction of supersonic boundary layer instabilities with stationary streamwise streaks

TS.FM02-4.04

Marensi, Elena: Effect of medium-intensity free-stream vorticity on a compressible boundary layer

TS.FM02-4.05

Bodony, Daniel: Instability and Transition of a Mach 5.8 ZPGBL Over a Thermomechanically Compliant Panel

TS.FM02-4.06

Denier, Jim: The post-collisional boundary layer on an impulsively rotated sphere

TS.FM03-1 520d

FM03 - Combustion and Flames
Chair: Ann Karagozian

TS.FM03-1.01 (INVITED)

Higgins, Andrew: Percolating reactive waves: Flames in the discrete regime

TS.FM03-1.02

Oran, Elaine: Shock-Flame Complexes: Transitional and Steady States

TS.FM03-1.03

Jin, Tai: Direct numerical simulation of turbulence-detonation interaction: Parametric study

TS.FM03-1.04

Radulescu, Matei: Dynamics of gaseous detonations with global mass divergence

TS.FM03-1.05

Palecka, Jan: Coupling and quenching in dual-front flames

TS.FM03-1.06

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

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TS.FM16-4	521abc
FM16 - Waves in Fluids <i>Chair: Fabrice Veron</i>	
TS.FM16-4.01	Grue, John: Nonlinear vs. linear supercritical dead water
TS.FM16-4.02	Liu, Hua: Generation and runup of triple solitary waves on plane slope
TS.FM16-4.03	Horne Iribarne, Ernesto: Transport of particles by internal waves
TS.FM16-4.04	Lerisson, Gaétan: Internal Wave in the Ocean, Local, Global Stability and Transient Growth
TS.FM16-4.05	Buckley, Marc: Structure of the airflow above surface gravity waves
TS.FM16-4.06	Deike, Luc: Air entrainment and bubble statistics in three-dimensional breaking waves

TS.SM03-1	518a
SM03 - Damage Mechanics <i>Chair: Ron Peerlings</i>	
TS.SM03-1.01 (INVITED)	Hild, François: In situ observations of strained bands and ductile damage in thin aluminum alloy sheets
TS.SM03-1.02 (INVITED)	Pandolfi, Anna: A model of poro-mechanical damaging material
TS.SM03-1.03	Brüning, Michael: Biaxial experiments and numerical analysis of stress-state-dependent damage and failure
TS.SM03-1.04	Chen, Naigeng: Experimental determination of non-woven bond strength distributions.
TS.SM03-1.05	De Geus, Tom: Systematic analysis of fracture in two-phase materials at all stages
TS.SM03-1.06	Fan, Zhengxuan: Atomistic simulation of surface cyclic slip irreversibility in FCC metals

TS.SM04-4	516a
SM04 - Elasticity <i>Chair: Thomas Pence</i>	
TS.SM04-4.01 (INVITED)	Triantafyllidis, Nicolas: Freedericksz Instability for the Twisted Nematic Device; A 3D Analysis
TS.SM04-4.02	Bellis, Cédric: Converting strain maps into elasticity maps for materials with small contrast
TS.SM04-4.03	Shifrin, Efim: Identification of small inhomogeneities in 3D thermoelasticity
TS.SM04-4.04	Peerlings, Ron: Hygro-Mechanical Structure-Property Relations for Paper Sheets
TS.SM04-4.05	Shmuel, Gal: The universality of the band structure of layered composites
TS.SM04-4.06	Matlack, Kathryn: Controlling band gaps with geometry in composite elastic meta-structures

TS.SM05-4	519b
SM05 - Fracture Mechanics <i>Chair: R. Narasimhan</i>	
TS.SM05-4.01 (INVITED)	Ponson, Laurent: Cracking the crack: What do we learn from the statistical properties of fracture surfaces?
TS.SM05-4.02	Woelke, Pawel: Investigation of fracture in large ductile plates
TS.SM05-4.03	Zikry, Mohammed: Dynamic fracture and orientation relations of h.c.p.-f.c.c. systems
TS.SM05-4.04	Baxeavanis, Theocharis: Thermomechanical Fracture in Shape Memory Alloys
TS.SM05-4.05	Hoshide, Toshihiko: Statistical Simulation of Biaxial Fatigue Behaviour Affected by Microstructure
TS.SM05-4.06	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
SM07 - Impact Mechanics and Wave Propagation <i>Chair: Gennady Kanel</i>	SM08 - Multi-component Materials and Composites <i>Chair: Nancy Sottos</i>	SM09 - Phase and Chemical Transformations and Thermo-mechanical Phenomena <i>Chair: Sam Daly</i>	SM10 - Sizescale Effects in Materials <i>Chair: Sinisa Mesarovic</i>
TS.SM07-4.01 (INVITED) Zaretsky, Eugene: The Influence of Temperature and Crystal Structure on High Strain Rate Behavior of Metals	TS.SM08-1.01 (INVITED) Ponte Castañeda, Pedro: Fully optimized variational estimates for the macroscopic response of nonlinear composites	TS.SM09-4.01 (INVITED) Sun, Qingping: Enhance fatigue resistance of NiTi by grain size gradient	TS.SM10-4.01 (INVITED) Bardella, Lorenzo: Implicit finite element algorithms for higher-order gradient plasticity theory
TS.SM07-4.02 Czarnota, Christophe: Shock wave structures in porous media accounting for micro-inertia effects	TS.SM08-1.02 Lopez-Pamies, Oscar: Nonlinear Electroelastic Deformations of Dielectric Elastomer Composites	TS.SM09-4.02 Constantinescu, Andrei: Two scale analysis of the fatigue of shape memory alloys	TS.SM10-4.02 Altenbach, Holm: An Energy-Based Formulation of Equivalent Inhomogeneity for Interphase Models
TS.SM07-4.03 Zhou, Tingting: Void collapse and hot spot formation in shocked HMX: A large-scale molecular dynamics study	TS.SM08-1.03 Brenner, Renald: Approximate plastic yield criterion and hardening of porous single crystals	TS.SM09-4.03 Daly, Samantha: The effect of microstructure on phase transformation in shape memory alloys	TS.SM10-4.03 Reddy, Daya: Some features of dissipative theories of strain-gradient plasticity
TS.SM07-4.04 Thomson, Stuart: Violent elastic-plastic wave interactions	TS.SM08-1.04 Mattei, Ornella: Bounds on the response of viscoelastic composites in the time domain	TS.SM09-4.04 Favier, Denis: Uniform or localized pure bending deformation of superelastic NiTi thin wires	TS.SM10-4.04 Juul, Kristian: Steady-state numerical modeling of size effects in wire drawing
TS.SM07-4.05 Trainiti, Giuseppe: Broken time-reversal symmetry in beams in longitudinal motion	TS.SM08-1.05 Doghri, Issam: Finite strain viscoelastic-viscoplastic modeling of polymers and application to composites	TS.SM09-4.05 Lepage, William: Thermomechanical Characterization of Shape Memory Alloy Mode I Fracture Behavior	TS.SM10-4.05 Lebensohn, Ricardo: Spectral non-local crystal plasticity modelling of size effects in polycrystals
	TS.SM08-1.06 Voropaieff, Jean-Pierre: Modeling and identification of the constitutive behaviour of MRE's.	TS.SM09-4.06 Phillips, Francis: Fracture of Ni60Ti40 shape memory alloy notched plates under cooling	TS.SM10-4.06 Puri, Saurabh: Modeling of size effects in plasticity using field dislocation mechanics

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TS.SM14-4 515bc	TS.SM15-1 516b	TS.FS02-1 522bc
SM14 - Stability of Structures <i>Chair: Katia Bertoldi</i>	SM15 - Computational Solid Mechanics <i>Chair: Ricardo Lebensohn</i>	FS02 - Exascale Computing <i>Chair: PK Yeung</i>
TS.SM14-4.01 (INVITED) Reis, Pedro: Defect-controlled buckling of depressurized elastic shells	TS.SM15-1.01 (INVITED) Djaka, Komlan Senam: A FFT method for continuum dislocation mechanics with heterogeneous elasticity	TS.FS02-1.01 (INVITED) Ghattas, Omar: Big data meets big models: Towards exascale Bayesian inverse problems
TS.SM14-4.02 Tanaka, Hiro: Transformation shift of periodic cellular structure by controlling internal stiffness	TS.SM15-1.02 Alleman, Coleman: Distribution-enhanced homogenization: Theory and application	TS.FS02-1.02 (INVITED) Alexeev, Dmitry: An HPC framework for Bayesian uncertainty quantification of flows across scales
TS.SM14-4.03 Wehmeyer, Steven: Non-linear response of elastic snap-through structures	TS.SM15-1.03 Goenezen, Sevan: Non-destructive characterization of heterogeneous solids from limited surface measurements	TS.FS02-1.03 Hori, Muneo: Earthquake Hazard and Disaster Simulation Using Urban Area Model of $10.7 \cdot 10^9$ Degree-Of-Freedom
TS.SM14-4.04 Wen, Guangyang: Dynamic Stability of Biaxially Strained Thin Sheets Under High Strain-Rates	TS.SM15-1.04 Cui, Yi: Molecular dynamics study of the interfacial debonding due to cylindrical nano-inclusion	TS.FS02-1.04 Yoshimura, Shinobu: Full scale seismic response simulation of nuclear power plant subjected to strong earthquake
TS.SM14-4.05 Xu, Fan: On axisymmetric/diamond-like mode transitions in core-shell cylinders under axial compression.	TS.SM15-1.05 Hallberg, Håkan: Microstructure evolution in Cu thin films, investigated by ab-initio and level set modeling	TS.FS02-1.05 Konduri, Aditya: Implementation of exascale asynchronous solvers for PDEs
TS.SM14-4.06 Yu, Tian: Multi-stability and bifurcations of thin bands		TS.FS02-1.06 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	09:30 – 10:30
<p>HP – Hill Prize Lecture Chair: <i>Ben Freund</i></p> <p>Ogden, Ray: Application of nonlinear elasticity to soft tissue biomechanics <i>Room 517abc</i></p>	<p>BP – Batchelor Prize Lecture Chair: <i>Grae Worster</i></p> <p>Goldstein, Raymond: Fluid Dynamics at the Scale of the Cell <i>Room 517abc</i></p>

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WEDNESDAY, AUGUST 24 | MORNING

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

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

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

TS.FM02-5	520e
FM02 - Boundary Layers <i>Chair: Xuesong Wu</i>	
TS.FM02-5.01	Gaster, Michael: Boundary layer transition initiated by a random excitation
TS.FM02-5.02	Walton, Andrew: Localized self-sustaining processes in the asymptotic suction boundary layer
TS.FM02-5.03	Mao, Xuerui: Nonlinear optimal streaks induced by free-stream disturbances in flow over a thin flat plate
TS.FM02-5.04	Wang, Zhefu: Control of crossflow instability using plasma actuators
TS.FM02-5.05	White, Christopher: Transition to turbulence in reciprocating channel flow
TS.FM02-5.06	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
FM03 - Combustion and Flames <i>Chair: Matthew Juniper</i>	FM06 - Drops, Bubbles and Multiphase Flows <i>Chair: Jeffrey Giacomini</i>	FM07 - Flow Instability and Transition <i>Chair: Laurette Tuckerman</i>	FM08 - Flow in Thin Films <i>Chair: Christian Ruyer-Quil</i>
TS.FM03-2.01 (INVITED) Oefelein, Joseph: Dynamics of gas-liquid interfaces in high-pressure systems	TS.FM06-5.01 Kant, Pallav: Sequential droplet deposition on geometrically and chemically patterned substrates	TS.FM07-3.01 Kanazawa, Takahiro: Exponential increase of the lifetime with the number of coherent structures	TS.FM08-1.01 (INVITED) Eggers, Jens: Arrested bubble rise in a narrow tube
TS.FM03-2.02 Attili, Antonio: Turbulent premixed Bunsen flames over a wide range of Reynolds number	TS.FM06-5.02 Colinet, Pierre: Leidenfrost drops on a liquid substrate: Theory and experiments	TS.FM07-3.02 Wesfreid, José: Instabilities in the flow behind rotating bluff bodies	TS.FM08-1.02 Jensen, Oliver: Drop spreading with random viscosity
TS.FM03-2.03 Capece de Nardis, Jesse: Adjoint-informed ignition characterization	TS.FM06-5.03 Magnaudet, Jacques: Short- and long-term tailing dynamics during the settling of a sphere through an interface	TS.FM07-3.03 Marquet, Olivier: A new formalism for identifying wavemaker regions of linear instabilities	TS.FM08-1.03 Wilson, Stephen: A fluid dynamical model for anti-surfactant solutions
TS.FM03-2.04 Semenov, Ilya: Modeling of detonation processes in H ₂ -air mixtures with concentration gradients	TS.FM06-5.04 Villermaux, Emmanuel: Explosive Fragmentation	TS.FM07-3.04 Asai, Masahito: Experimental investigation of instability of convecting local high-shear layer	TS.FM08-1.04 Dallaston, Michael: Axisymmetric self-similar rupture of thin films with general disjoining pressure
TS.FM03-2.05 Dunnmon, Jared: 3D Flame Characterization via X-ray Computed Tomography	TS.FM06-5.05 Prosperetti, Andrea: Fully resolved simulation of fluid flow with suspended particles	TS.FM07-3.05 Fukudome, Koji: Relaminarization of stably stratified turbulent Poiseuille flows at low Reynolds number	TS.FM08-1.05 Goel, Sachin: Drainage of a thin film of Bingham fluid between two viscous Newtonian drops
TS.FM03-2.06 Osborne, Jeffrey: Particle dynamics through turbulent premixed flames using 10 kHz TPV, OH PLIF, and CH ₂ O PLIF	TS.FM06-5.06 Zaleski, Stephane: 3D DNS of spray formation in gas-assisted atomization	TS.FM07-3.06 Chomaz, Jean-Marc: Optimal Perturbations of a Counter-rotating Vortex Pair in Stratified Flows	TS.FM08-1.06 Ait Abderrahmane, Hamid: Tear Film Dynamics on a Spherical Cornea

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

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

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

TS.SM04-5 516a
SM04 - Elasticity <i>Chair: Fumihiro Ashiro</i>
TS.SM04-5.01 Segev, Reuven: On the relation between generalized stress theory and electrodynamics
TS.SM04-5.02 Pence, Thomas: Swelling induced burst in hyperelastic spheres and cylinders
TS.SM04-5.03 Man, Chi-Sing: Remarks on isotropic extension of anisotropic constitutive functions via structural tensors
TS.SM04-5.04 Itskov, Mikhail: Mechanics of nano-particles filled elastomers based on polymer chain length statistics
TS.SM04-5.05 Dorfmann, Luis: Modeling of Residually Stressed Materials
TS.SM04-5.06 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
SM05 - Fracture Mechanics <i>Chair: Stephanie Heyden</i>	SM07 - Impact Mechanics and Wave Propagation <i>Chair: Andrei Metrikine</i>	SM08 - Multi-component Materials and Composites <i>Chair: Pierre Suquet</i>	SM09 - Phase and Chemical Transformations and Thermomechanical Phenomena <i>Chair: Valery Levitas</i>
TS.SM05-5.01 Ariza, Pilar: Nanovoid cavitation in Aluminum	TS.SM07-5.01 Engelbrecht, Jüri: Interaction of deformation waves with internal structures in solids	TS.SM08-2.01 (INVITED) Brassart, Laurence: Homogenization-based constitutive modelling for diffusion problems	TS.SM09-5.01 (INVITED) Qu, Jianmin: Interface-reaction controlled diffusion in binary solids
TS.SM05-5.02 Li, Jiaoyan: Topological Design of Graphene with Enhances Fracture Toughness	TS.SM07-5.02 Thorin, Anders: Nonsmooth modal analysis of piecewise-linear impact systems	TS.SM08-2.02 Bornert, Michel: Experimental investigation of grain boundary sliding in polycrystalline halite	TS.SM09-5.02 Guo, Shu: An integrated temporal multi-scale multi-physics model with damage in multifunctional materials
TS.SM05-5.03 Khosrownejad, Mostafa: Crack propagation mechanisms in amorphous LiSi alloys: Insights from molecular dynamics	TS.SM07-5.03 Grinberg, Itay: Multi-site discrete breathers in finite vibro-impact chain	TS.SM08-2.03 Madra, Anna: A macroscale model of short fiber composite based on x-ray microtomography	TS.SM09-5.03 Panchenko, Artem: Analysis of Mie-Grüneisen equation of state for two-dimensional crystal lattices
TS.SM05-5.04 Guin, Laurent: Molecular dynamics based cohesive zone model for polycrystalline graphene	TS.SM07-5.04 Urman, David: Nonlinear modes of vibration of vibro-impact duffing oscillators	TS.SM08-2.04 Kubair, Dharendra: Statistically augmented boundary conditions for statistically equivalent RVEs	TS.SM09-5.04 Babenkov, Mikhail: Unsteady heat conduction processes in a harmonic crystal with a substrate potential
TS.SM05-5.05 Yang, Hui: Fracture toughness of Li _x Si alloys in lithium ion battery	TS.SM07-5.05 Singh, Harmeet: Pick-up, impact and peeling	TS.SM08-2.05 Vandepitte, Dirk: Modelling variability in composite fibre reinforcement geometry data	TS.SM09-5.05 Akbarzadeh, Hamid: Multiscale Modeling of Thermal Wave: From Non-local Continuum to Molecular Dynamics
TS.SM05-5.06 Ding, Bin: Atomistic mechanisms of fracture in amorphous lithiated silicon	TS.SM07-5.06 Fehr, Joerg: Acceleration of car crash simulations	TS.SM08-2.06 Cho, Hansoh: Morphological Micromechanics of Copolymeric Elastomers	TS.SM09-5.06 Issa, Sally: Influence of martensitic phase transformation on crack propagation in austenitic steel

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

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

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

TS.FS09-1	515bc
FS09 - Foams and Cellular Materials <i>Chair: Isabelle Cantat</i>	
TS.FS09-1.01 (INVITED)	Combesure, Christelle: In-plane loading of hexagonal honeycombs: Post-bifurcation and stability behavior
TS.FS09-1.02 (INVITED)	Gaitanaros, Stavros: The effect of polydispersity on the crushing of open-cell random foams
TS.FS09-1.03	Berinskii, Igor: Effective elastic properties of some cellular auxetic materials
TS.FS09-1.04	Blanc, Baptiste: Electro osmosis at liquid interfaces
TS.FS09-1.05	Giustiniani, Anaïs: Silicon polyHIPES (High Internal Phase Emulsions) via reactive emulsion stabilization
TS.FS09-1.06	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>Sectional Lecture in Fluids Chair: <i>Tim Pedley</i></p> <p>SL.FM-4 – Hosoi, Anette: Hydrodynamics and Hairy Surfaces <i>Room 520abc</i></p>	<p>Sectional Lecture in Fluids Chair: <i>Nadine Aubry</i></p> <p>SL.FM-6 – Bush, John: Hydrodynamic quantum analogs <i>Room 525ab</i></p>
<p>Sectional Lecture in Fluids Chair: <i>Jacques Magnaudet</i></p> <p>SL.FM-5 – Bodenschatz, Eberhard: The Transition to the Ultimate State in Turbulent Thermal Convection <i>Room 525ab</i></p>	<p>Sectional Lecture in Solids Chair: <i>W. (Wei) Yang</i></p> <p>SL.SM-5 – Suo, Zhigang: Soft Machines <i>Room 516cde</i></p>
<p>Sectional Lecture in Solids Chair: <i>Suresh Shrivastava</i></p> <p>SL.SM-4 – Rogers, John: Concepts in mechanics for 3D, bio-integrated electronics <i>Room 517d</i></p>	<p>Sectional Lecture in Solids Chair: <i>Jean Zhu</i></p> <p>SL.SM-6 – Forest, Samuel: The micromorphic approach to gradient crystal plasticity and damage <i>Room 517d</i></p>
<p>Sectional Lecture in Fluids-Solids Chair: <i>Gabor Stepan</i></p> <p>SL.FS-3 – Haller, George: Can solid mechanics help in understanding fluid vortices? <i>Room 516cde</i></p>	<p>Sectional Lecture in Solids Chair: <i>Tadeusz Burczynski</i></p> <p>SL.SM-7 – Onck, Patrick: Protein mechanics: from amino acid to swimming cells <i>Room 520abc</i></p>

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

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

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

TS.FM03-3	520d
FM03 - Combustion and Flames <i>Chair: Matei Radulescu</i>	
TS.FM03-3.01 (INVITED)	Carder, Daniel: Emission control challenges for compression ignition engines
TS.FM03-3.02	Candel, Sebastien: The Describing Function of Swirled Spray Flames
TS.FM03-3.03	Chatterjee, Sandipan: Swirl-stabilized non-premixed propane/air flames in a gas turbine model combustor
TS.FM03-3.04	Kheirkhah, Sina: Heat release rate and pressure phase differences inside an aeronautical gas turbine combustor
TS.FM03-3.05	Coenen, Wilfried: Global stability analysis of line-fire flickering
TS.FM03-3.06	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
FM04 - Compressible Flow <i>Chair: Leon Vanstone</i>	FM06 - Drops, Bubbles and Multiphase Flows <i>Chair: Jacques Magnaudet</i>	FM07 - Flow Instability and Transition <i>Chair: François Gallaire</i>	FM08 - Flow in Thin Films <i>Chair: Serafim Kalliadasis</i>
TS.FM04-1.01 (INVITED) Austin, Joanna: Hypervelocity shock-boundary layer interactions with varying freestream composition	TS.FM06-6.01 Sáenz, Pedro: Geometrically controlled dynamics in evaporating sessile drops	TS.FM07-4.01 Kida, Shigeo: Flow instability in a precessing sphere	TS.FM08-2.01 (INVITED) Bestehorn, Michael: Pattern forming instabilities in mechanically vibrating thin films
TS.FM04-1.02 Cinnella, Paola: Direct numerical simulations of supersonic turbulent channel flows of dense gases	TS.FM06-6.02 Wu, Wen: Particle resuspension by a periodically-forced impinging jet	TS.FM07-4.02 Majji, Madhu: Flow transition of neutrally buoyant suspension between concentric cylinders	TS.FM08-2.02 (INVITED) Nepomnyashchy, Alexander: Waves in a heated liquid layer covered by insoluble surfactant
TS.FM04-1.03 Sciacovelli, Luca: Small scale dynamics of dense gas decaying turbulence	TS.FM06-6.03 De Jong, Edwin: Numerical Simulation of Droplet Transport Using Switchable Hydrophobic Surfaces	TS.FM07-4.03 Mutabazi, Innocent: Thermoelectric convection in dielectric liquids in a cylindrical annulus	TS.FM08-2.03 Ruyer-Quil, Christian: Sheared falling film flows: An experimental and numerical study
TS.FM04-1.04 Alferez, Nicolas: Non-ideal shock refraction properties in dense vapours	TS.FM06-6.04 Fontelos, Marco: Healing capillary films	TS.FM07-4.04 Di Giovanni, Antonio: Boundary-layer stability of a generic reentry capsule with real-gas effects	TS.FM08-2.04 Denner, Fabian: On solitary waves in periodically excited falling liquid films
TS.FM04-1.05 Koren, Barry: Application of a fully compressible multiphase SPH scheme to hypervelocity impacts	TS.FM06-6.05 Nore, Caroline: Taylor instability in liquid metal columns and liquid metal batteries	TS.FM07-4.05 Shoji, Takeshi: Effects of external forcing on transverse jet structure and mixing	TS.FM08-2.05 Mendez, Miguel: Experimental Characterization of 2D Traveling Waves in Low Kapitza Liquid Film down a Vertical Wall
TS.FM04-1.06 Kluwick, Alfred: Steady transonic dense gas flow past a two-dimensional compression/expansion ramp	TS.FM06-6.06 Bertin, Nicolas: Bubble-based Acoustic Micropropulsion: Mixing and Advanced Swimmers	TS.FM07-4.06 Huerre, Patrick: Local and global instability of buoyant jets and plumes	TS.FM08-2.06 Afkhami, Shahriar: On the computation of viscous forces near the moving contact line

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TS.FM14-6	524a
FM14 - Turbulence <i>Chair: Laurent Mydlarski</i>	
TS.FM14-6.01	Okino, Shinya: Spectral analyses of high Prandtl number stratified turbulence
TS.FM14-6.02	Gaskin, Susan: Effect of Background Turbulence on Passive Scalar Mixing Within a Turbulent Jet
TS.FM14-6.03	Dodd, Michael S.: Effects of viscosity ratio on droplet-laden isotropic turbulence
TS.FM14-6.04	Kametani, Yukinori: Optimal control input for skin friction drag reduction in turbulent channel flow
TS.FM14-6.05	Rouhi, Amirreza: Application of the integral length-scale approximation to Wall Modelled LES
TS.FM14-6.06	Stevens, Richard: Simulation and modeling of extended wind-farms

TS.SM01-1	516cde
SM01 - Biomechanics and Biomaterials <i>Chair: Gang Bao</i>	
TS.SM01-1.01 (INVITED)	McMeeking, Robert: Remodeling of cardiomyocytes in vitro
TS.SM01-1.02	Holzappel, Gerhard: Experimental and computational analysis of aortic dissection
TS.SM01-1.03	Ehret, Alexander: Analysing the fracture behaviour of soft biological membranes
TS.SM01-1.04	deBotton, Gal: Micromechanics motivated modeling of fibrous tissues
TS.SM01-1.05	Marchi, Benjamin: The Importance of Physiologically and Anatomically Representative Ligaments in Knee Models
TS.SM01-1.06	Xu, Xinpeng: Nonlinear elasticity of biopolymer gels under compression

TS.SM02-1	515a
SM02 - Contact and Friction <i>Chair: Irina Goryacheva</i>	
TS.SM02-1.01 (INVITED)	Fineberg, Jay: Slippery but tough - the rapid fracture of lubricated frictional interfaces
TS.SM02-1.02	Barber, James: slip-weakening laws and apparent static friction coefficient
TS.SM02-1.03	Cabboi, Alessandro: Unlocking Dynamic Friction: the Frictional Frequency Response
TS.SM02-1.04	Yang, Jun: Nanotribology Study With T-shape Probe by Atomic Force Microscopy
TS.SM02-1.05	Vasu, Thamarai Selvan: Surface loading of layer-substrate system under plane-strain condition with surface effects
TS.SM02-1.06	Aizikovich, Sergey: Analytical solutions of contact problems for bodies with functionally graded coatings

TS.SM03-3	518a
SM03 - Damage Mechanics <i>Chair: Lizhi Sun</i>	
TS.SM03-3.01 (INVITED)	Sun, Lizhi: Dynamic Viscoelastic Modeling of Interfacial Debonding for Magnetorheological Nanocomposites
TS.SM03-3.02	Longère, Patrice: Modelling of shear failure caused by adiabatic shear banding and subsequent microvoiding
TS.SM03-3.03	Matous, Karel: Virtual materials testing
TS.SM03-3.04	Revil-Baudard, Benoit: Modeling plasticity-damage coupling in anisotropic titanium & validation by XCMT
TS.SM03-3.05	Turteltaub, Sergio: Multiscale traction-separation relations for fiber-reinforced composites
TS.SM03-3.06	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
SM05 - Fracture Mechanics <i>Chair: Leslie Banks-Sills</i>	SM08 - Multi-component Materials and Composites <i>Chair: Xiaodong Wang</i>	SM10 - Sizescale Effects in Materials <i>Chair: Zengtao Chen</i>	SM12 - Nanostructures and MEMS <i>Chair: Alberto Corigliano & Horacio Espinosa</i>
TS.SM05-6.01 Begley, Matthew: Cohesive zone modeling of crack kinking out of an interface	TS.SM08-3.01 (INVITED) White, Scott: Self-healing of impact damage in woven composites	TS.SM10-6.01 Husser, Edgar: The mechanical behavior of gold-polymer nanocomposites: A numerical study	TS.SM12-1.01 (INVITED) Bertoldi, Katia: Architected materials: Performance through bistability
TS.SM05-6.02 Iacobellis, Vincent: Multiscale cohesive zone model of a composite microstructure	TS.SM08-3.02 Ochoa, Ozden: An experimental and computational study on a NiTi/polyimide matrix composite interface	TS.SM10-6.02 Ponga, Mauricio: Understanding Prismatic Dislocation Loops in Mg by means of large-scale ab-initio simulations	TS.SM12-1.02 Xu, Baoxing: Mechanics of evaporation-driven folding of graphene sheets
TS.SM05-6.03 Hoefnagels, Johan: Stretchable electronics: solving metal-matrix debonding by removing the matrix	TS.SM08-3.03 Wu, Jiangtao: Active composites by multi-material 3d printing	TS.SM10-6.03 Klusemann, Benjamin: Study of Intrinsic and Extrinsic Size Effects on Shear Bands in Metallic Glasses	TS.SM12-1.03 Chen, Xue: Asymmetric bifurcation of FGM microbeam actuated by thermo-electrical loadings
TS.SM05-6.04 Juan, Pierre-Alexandre: Mechanics of finite crack considering interfacial elasticity	TS.SM08-3.04 Li, Tiantian: Design of co-continuous composite materials using 3d printing technique	TS.SM10-6.04 Linder, Christian: A micromechanical model for strain-induced crystallization in rubber	TS.SM12-1.04 Comi, Claudia: Pull-in and nonlinear dynamic behavior of torsional microresonators
TS.SM05-6.05 Lu, Wei: Interaction of delamination and electrochemical processes	TS.SM08-3.05 Sottos, Nancy: Effects of microstructural variations on transverse crack initiation in composites	TS.SM10-6.05 Kordolemis, Alexis: Axially loaded pretwisted nonlinear thin plates: A strain gradient analogy	TS.SM12-1.05 Elhebeary, Mohamed: Mechanical Characterization of Materials At Micro/Nanoscale Under Bending
TS.SM05-6.06 Massabo, Roberta: A homogenized approach for delamination fracture in laminated structures	TS.SM08-3.06 Daniel, Isaac: Yield criteria for matrix and composite materials under static and dynamic loading	TS.SM10-6.06 Barrioz, Pierre-Olivier: Experimental assessment of nanovoids growth	TS.SM12-1.06 Endo, Daichi: Utilization of Self-Excited Oscillation for Mass Sensing in Liquid

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THURSDAY, AUGUST 25 | MORNING

	TS.SM13-1 516a	TS.SM15-3 516b	TS.FS08-1 520f	TS.FS09-2 515bc
	SM13 - Plasticity, Viscoplasticity and Creep <i>Chair: Markus Hutter</i>	SM15 - Computational Solid Mechanics <i>Chair: Pierre Suquet</i>	FS08 - Granular Materials and Flows <i>Chair: Eric DiGiuli</i>	FS09 - Foams and Cellular Materials <i>Chair: Stavros Gaitanaros</i>
10:30-10:50	TS.SM13-1.01 (INVITED) Danas, Kostas: An analytical model for porous single crystals with ellipsoidal voids	TS.SM15-3.01 (INVITED) Upadhyay, Manas: Lattice strain evolution during biaxial loading: A fe-fft multiscale modelling approach	TS.FS08-1.01 (INVITED) Behringer, Robert: Identifying structure during shear jamming	TS.FS09-2.01 (INVITED) Leroy, Valentin: Acoustical properties of liquid foams
10:50-11:10	TS.SM13-1.02 Ahmed, Benallal: An extension of the gursion model involving lode angle	TS.SM15-3.02 Knezevic, Marko: Transitioning rate sensitivities across multiple length scales in crystal plasticity	TS.FS08-1.02 (INVITED) Lagree, Pierre-Yves: Discharge flow of granular media from silos with lateral orifice: Experiments and simulations	TS.FS09-2.02 Jullien, Marie-Caroline: Thermocapillary Forced-drained Foam: Effect of Surface Rheology
11:10-11:30	TS.SM13-1.03 Balint, Daniel: Rate sensitivity in discrete dislocation plasticity	TS.SM15-3.03 Kochmann, Julian: Two-scale, FE-FFT-and phase-field-based computational homogenization	TS.FS08-1.03 (INVITED) DeGiuli, Eric: A Phase Diagram Unifies Energy Dissipation, Kinetics, and Rheology in Inertial Granular Flows	TS.FS09-2.03 Kraiem, Omar: Modelling the crushing behavior of a ceramic brittle foam
11:30-11:50	TS.SM13-1.04 Bassani, John: Continuum model and simulations for microstructural evolution in deformation processes	TS.SM15-3.04 Luscher, Darby: Continuum transport of dislocations during shock response of crystals	TS.FS08-1.04 (INVITED) Maza, Diego: About the mass flow rate in silos	TS.FS09-2.04 Krödel, Sebastian: Phononic Microlattices for Ultrasonic Applications
11:50-12:10	TS.SM13-1.05 Bedzra, Rex: Modelling fiber reinforced composites exhibiting elastoplastic deformation	TS.SM15-3.05 Mastorakos, Ioannis: Investigation of single crystal deformation with continuum dislocation dynamics	TS.FS08-1.05 Barker, Thomas: Well-posed continuum modelling of granular flow	TS.FS09-2.05 Li, Yaning: Auxetic effects induced by re-entrant angle and chirality with large deformation
12:10-12:30	TS.SM13-1.06 Brach, Stella: Strength properties of nanoporous materials: A molecular dynamics approach		TS.FS08-1.06 Bérut, Antoine: Microfluidic granular avalanches: A model for gravity detection in plants cells	TS.FS09-2.06 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

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** | Nazaripoor, 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, Likai](#): 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 Advected in Rectangular and Elliptical Pipes**PO.FM11-1.09.69** | [Mitra, Suriyasish](#): 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, Ruifeng](#): 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

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

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

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

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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 | [Rodriguez, 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 | Behdinan, 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 | Wej, Yueguang: Characterization of damage and failure for nanocrystalline materials

PO.SM03-2.09.129 | Yang, Li: Quantitative Assessment of Failure in Tbcs 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**Room:** 519a**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

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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

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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

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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, Adebawale: 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

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PO.SM13-1.13.188 | Scherzinger, William: Yield surface effects on stability and failure

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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

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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

PO.SM15-1.16.209 | Yin, Shengwen: Gegenbauer series expansion with interval, fuzzy and random variables

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SM16 - Vibrations and Control of Structures**Room:** 518c

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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

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PO.SM16-1.06.216 | Hernandez, Eric: Equivalent viscous damping of a cylinder moving transversely through sand: Experimental Results

PO.SM16-1.07.217 | Menaa, 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

PO.SM16-1.09.219 | Rai, Amit: Vibration of a Simply Supported Circular Plate under Moving Points Loads

PO.SM16-1.10.220 | Szyszkowski, Walerian: FE simulation of active vibrations attenuation in structures

PO.SM16-1.11.221 | Tarlovskiy, 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)**Room:** 521abc

PO.FS05-1.01.228 | Beaudoin, Anthony: Transport equation for the concentration gradient

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, Xiyang: 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 CO₂ migration in porous rocks under conditions of saline aquifers

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

Room: 515bc

PO.FS06-1.01.237 | Amar, Luc: Passive control of flutter applied to a 3DOF airfoil

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

PO.FS06-1.06.242 | Furquan, Mohd: Flow induced vibrations of cylinder with flexible splitter plate

PO.FS06-1.07.243 | Hassani, Masoud: Large deformation of chiral rods and ribbons subjected to wind

PO.FS06-1.08.244 | Jaiman, Rajeev: Partitioned iterative and dynamic subgrid-scale methods for vibrating offshore structures

PO.FS06-1.09.245 | Kay, Edmund: A vibrating membrane model for mitral valve honks

PO.FS06-1.10.246 | Lv, Jinan: Investigation on aeroelastic response of a hypersonic wind tunnel experiment model

PO.FS06-1.11.247 | Ma, Ruiqiang: Study on vibration characteristics of the inflatable boom filled with gas

PO.FS06-1.12.248 | Mohammed, Abbadeni: Fe analysis of fluid-structure interactions in the hydromechanical deep drawing process

PO.FS06-1.13.249 | Paraz, Florine: Thrust generation by a heaving flexible foil

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PO.FS06-1.14.250 | Tubaldi, Eleonora: Nonlinear response of shells conveying pulsatile flow

PO.FS06-1.15.251 | Tulchinsky, Arie: Transient dynamics of elastic hele-shaw cell due to external forces

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)

Room: 518a

PO.FS07-1.01.255 | Chen, Fanlong: Design and simulation on a morphing marine propeller

PO.FS07-1.02.256 | Cramer, Mark: Numerical modeling of gas-expanded lubricants in hybrid bearings

PO.FS07-1.03.257 | He, Yongjun: High-frequency martensite reorientation in Ni-Mn-Ga — Temperature rise and its influence

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

Room: 520f

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 vibrating cylinder filled with fluid

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

PO.FS08-1.12.276 | Vega Reyes, Francisco: Rheological properties of granular suspensions at moderate densities

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

Room: 515bc

PO.FS09-2.01.278 | Martinez Pavetti, Belen: Quasi-lattice dynamics of random skeletal structures

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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TS.FM04-2	522bc
FM04 - Compressible Flow <i>Chair: Joanna Austin</i>	
TS.FM04-2.01	Pasquariello, Vito: Large-eddy simulation of strong shock-wave/turbulent boundary-layer interaction at $Re_\theta = 14000$
TS.FM04-2.02	Sherwin, Spencer: On the Riemann flux performance in DG-based implicit LES at very high Reynolds numbers
TS.FM04-2.03	Livescu, Daniel: Subgrid scale analysis of turbulence after the shock-turbulence interaction
TS.FM04-2.04	Sen, Oishik: Multiscale modeling using a Dynamic Kriging-based metamodeling technique
TS.FM04-2.05	Paolucci, Samuel: Shock structure in hypersonic flows
TS.FM04-2.06	De Brauer, Alexia: Compressible multimaterial flows

TS.FM05-1	520d
FM05 - Convection <i>Chair: Ke-Qing Xia</i>	
TS.FM05-1.01 (INVITED)	Chilla, Francesca: Lagrangian Measurements in Turbulent Thermal Convection
TS.FM05-1.02 (INVITED)	Shishkina, Olga: Heat and momentum transport in horizontal convection
TS.FM05-1.03 (INVITED)	Tasaka, Yuji: Two-dimensional oscillations in MHD Rayleigh-Benard convection
TS.FM05-1.04 (INVITED)	Zhong, Jin-Qiang: The large-scale circulation dynamics in rotating Rayleigh-Benard convection
TS.FM05-1.05	Xia, Ke-Qing: Turbulent thermal convection over rough surfaces with varying roughness size
TS.FM05-1.06	Wynn, Andrew: Optimal Bounds on Energy Dissipation for Stress-driven Shear Flows

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

TS.FM10-1	520abc
FM10 - Low Reynolds Number Flow <i>Chair: Elisabeth Guazzelli</i>	
TS.FM10-1.01	Stone, Howard: Hydrodynamics of a hot particle in a viscous fluid
TS.FM10-1.02	Slowicka, Agnieszka: Three modes of the dynamics of flexible fibers in shear flow
TS.FM10-1.03	Duprat, Camille: Complex Trajectories of Confined Fibers in Viscous Flows
TS.FM10-1.04	Mitchell, William: Generalized traction integral equations and viscous erosion
TS.FM10-1.05 (INVITED)	Shelley, Michael: Fluid-structure interactions in cellular biophysics
TS.FM10-1.06 (INVITED)	Singh, Pushpendra: Fluid dynamics of hydrophilous pollination in <i>Ruppia</i> (widgeon grass)

TS.FM11-1 524bc	TS.FM15-1 520e	TS.SM01-2 516cde	TS.SM02-2 515a	
FM11 - Micro- and Nano-fluidics <i>Chair: Huiling Duan</i>	FM15 - Vortex Dynamics <i>Chair: Morten Brøns and Kerry Hourigan</i>	SM01 - Biomechanics and Biomaterials <i>Chair: Patrick Onck</i>	SM02 - Contact and Friction <i>Chair: James Barber</i>	
TS.FM11-1.01 (INVITED) Sbragaglia, Mauro: Mesoscopic dynamics of droplets and emulsions in a microchannel	TS.FM15-1.01 Quaranta, Umberto: Long-wave instabilities of two interlaced helical vortices	TS.SM01-2.01 (INVITED) Deshpande, Vikram: Fluctuations in experiments of cells on substrates	TS.SM02-2.01 (INVITED) Hills, David: Characterisation of edge conditions in general incomplete contacts	15:40-16:00
TS.FM11-1.02 Juel, Anne: Sensitivity of Saffman-Taylor fingers to channel depth perturbations	TS.FM15-1.02 Stroh, Alexander: Secondary vortices over spanwise heterogeneous roughness	TS.SM01-2.02 Sun, Cui: Carotid wall stress analysis based on in vivo intravascular optical coherence tomography imaging	TS.SM02-2.02 Adams, George: Determination of frictional slip zone from a perfect bond solution	16:00-16:20
TS.FM11-1.03 Pawłowska, Sylwia: Mobility of highly deformable hydrogel nanofilaments	TS.FM15-1.03 Goudar, Manu: Auto-generation by interaction of weak eddies	TS.SM01-2.03 Untaroiu, Costin: Modeling liver parenchyma tearing using a cohesive zone modeling approach	TS.SM02-2.03 McKay, Andrew: Unifying different measurements of dynamic friction	16:20-16:40
TS.FM11-1.04 Silber-Li, Zhanhua: Swimming Mechanisms of Janus Micromotors: From Self-diffusiophoresis to Bubble Propulsion	TS.FM15-1.04 (INVITED) Krasny, Robert: Computation of the starting vortex past a flat plate	TS.SM01-2.04 Epstein, Marcelo: A model for mechanically driven morphogenesis	TS.SM02-2.04 Kolesnikov, Alexey: An initially cylindrical elastic membrane wrapped around a rigid cylinder	16:40-17:00
TS.FM11-1.05 (INVITED) Chung, Aram: Inertial microfluidics for manufacturing and quantitative single-cell studies	TS.FM15-1.05 (INVITED) Hourigan, Kerry: The curious case of the vanishing vorticity	TS.SM01-2.05 Chai, Herzl: On deformation and fracture of tooth enamel	TS.SM02-2.05 Jin, Fan: A two-dimensional double-hertz model for adhesive contact between elastic cylinders	17:00-17:20
TS.FM11-1.06 Neild, Adrian: Ultrasonic Force Potential Wells for Trapping Arrays of Single Cells - One Cell Per Well (OCPW)	TS.FM15-1.06 Yang, Wenchao: Two-dimensional wakes of an oscillating cylinder at low Reynolds number	TS.SM01-2.06 Bao, Gang: Force-induced internalization of magnetic nanoparticles for drug delivery and cell tracking		17:20-17:40

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TS.SM05-7 519b	TS.SM08-4 519a	TS.SM12-2 518b	TS.SM13-2 516a
SM05 - Fracture Mechanics <i>Chair: Roberta Massabo</i>	SM08 - Multi-component Materials and Composites <i>Chair: Laurence Brassart</i>	SM12 - Nanostructures and MEMS <i>Chair: Gunther Richter</i>	SM13 - Plasticity, Viscoplasticity and Creep <i>Chair: Markus Hutter</i>
TS.SM05-7.01 Palvadi, Naga Sundee: Extracting rate dependent traction separation relations for interfaces	TS.SM08-4.01 (INVITED) Boechler, Nicholas: Dynamics of microscale granular crystals	TS.SM12-2.01 (INVITED) Gao, Huajian: Recoverable plasticity in penta-twinned metallic nanowires	TS.SM13-2.01 (INVITED) Dolzmann, Georg: Analytical and numerical tools for relaxation in crystal plasticity
TS.SM05-7.02 Perelmuter, Mikhail: Modelling and analysis of bridging effect for interface cracks	TS.SM08-4.02 Bonnet, Guy: Dynamic behaviour with metamaterial properties in elastic composites	TS.SM12-2.02 Farokhi, Hamed: Nonlinear behaviour of carbon nanotube-based resonators	TS.SM13-2.02 Cazacu, Oana: Role of the matrix plastic flow on the mechanical response of porous solids
TS.SM05-7.03 Pan, Kui: Particle dynamics modeling of buckle-delamination of thin film materials	TS.SM08-4.03 Tsai, Peiying: Embedded nanoparticle arrangements on permittivity of elastomeric composites	TS.SM12-2.03 Guo, Jian-Gang: Theoretical studies on adsorption and diffusion of Li-ion on graphene surface	TS.SM13-2.03 Corona, Edmundo: Ductile Failure of Shear-Dominated "Hat" Specimens
TS.SM05-7.04 Sehr, Stephen: Analysis of cracking in candidate environmental barrier coatings	TS.SM08-4.04 Bodkhe, Samapda: Effect of nanoparticle addition on the mechanical and piezoelectric properties of 3D printed PVDF	TS.SM12-2.04 Guo, Wanlin: Mechanical-electric-magnetic coupling and energy conversion in two-dimensional materials	TS.SM13-2.04 Hoc, Thierry: Fem crystal plasticity law based on dislocation dynamics ultrasonic shot peening
TS.SM05-7.05 Morini, Lorenzo: Integral identities for thermodiffusive interfacial cracks	TS.SM08-4.05 Ray, Tyler: Field-Assisted 3D-Printing of Aligned Composites	TS.SM12-2.05 Gupta, Ankit: Multi scale modeling of mechanical behaviour of 2D single wall carbon nanotube network	TS.SM13-2.05 Joshi, Shailendra: Unraveling texture, triaxiality and anisotropy effects in hcp polycrystals
TS.SM05-7.06 Banks-Sills, Leslie: Reassessment of the virtual crack closure technique for interface cracks	TS.SM08-4.06 Hohe, Jörg: Modelling of material uncertainties in long fibre reinforced thermoplastics	TS.SM12-2.06 Ke, Changhong: Nanomechanical characterization of boron nitride and carbon nanotubes polymer interfaces	TS.SM13-2.06 Kondo, Djimedo: Ductile porous materials with a Mohr-Coulomb matrix: Theory and numerical bounds

TS.SM15-4 516b	TS.SM16-1 518c	TS.FS05-1 521abc	TS.FS07-1 518a	
SM15 - Computational Solid Mechanics <i>Chair: Stefanie Reese</i>	SM16 - Vibrations and Control of Structures <i>Chair: Felix Chernousko</i>	FS05 - Porous Media <i>Chair: Marc Prat</i>	FS07 - Actuating and Smart Materials <i>Chair: Zheng Zhong</i>	
TS.SM15-4.01 Suquet, Pierre: Model reduction for composite materials and polycrystals	TS.SM16-1.01 Matveenko, Valerii: Optimization of dynamic characteristics of smart-systems based on piezoelements	TS.FS05-1.01 Vandamme, Matthieu: Influence of the hydric state on the elastic and creep properties of self-standing clay films	TS.FS07-1.01 (INVITED) Lynch, Christopher: Using piezoelectrics to electrically transfer momentum from a shock wave	15:40-16:00
TS.SM15-4.02 Alian, Ahmed: Multiscale modelling of carbon nanotube– Reinforced polymer composites	TS.SM16-1.02 Araumi, Naoto: Fifth Order Analysis in Simply Supported Beam Subjected to Parametric Excitation	TS.FS05-1.02 (INVITED) Abousleiman, Younane: Micromechanical characterization of a natural organic rich composite porous medium	TS.FS07-1.02 Avakian, Artjom: Finite element simulation of magnetoelectric coupling in multiferroic composites	16:00-16:20
TS.SM15-4.03 Frydrych, Karol: Modelling Microstructure Evolution in SPD Processes in the Framework of Crystal Plasticity Theory	TS.SM16-1.03 Brack, Tobias: Monitoring the Viscoelastic Behavior of Complex Fluids Using Multi-Frequency Resonance Tracking	TS.FS05-1.03 (INVITED) Pelleng, Roland: The bottom-up modeling approach to cement paste	TS.FS07-1.03 Bilal, Osama: Phononic transistors and mechanical calculators	16:20-16:40
TS.SM15-4.04 Kobayashi, Takuya: Piezoelectric and dielectric properties of barium titanate polycrystals	TS.SM16-1.04 Hajdu, David: Robust stability of milling processes	TS.FS05-1.04 (INVITED) Shikhmurzaev, Yulii: Non-Washburn imbibition: Modelling results and emerging issues	TS.FS07-1.04 Chatzigeorgiou, George: Thermomechanically coupled model for non-proportional loading in SMAs	16:40-17:00
TS.SM15-4.05 Ozturk, Deniz: Crystal plasticity FE study of the role of microtexture on Dwell Fatigue Response of Ti-6242	TS.SM16-1.05 Krenk, Steen: Calibration of tuned mass or inerter based vibration absorbers	TS.FS05-1.05 (INVITED) Worster, Graë: Freezing solutions and colloidal suspensions	TS.FS07-1.05 Zhang, Yang: Remote bending control of liquid crystal polymer beams by light induced moment and shear forces	17:00-17:20
TS.SM15-4.06 Zhang, Xiaohan: A continuum model for discrete dislocation dynamics	TS.SM16-1.06 Majewski, Tadeusz: Two Possible Excitations for the Bristle Robot	TS.FS05-1.06 Prevost, Jean: Intersecting Faults Simulations for Reservoir-geomechanical Models	TS.FS07-1.06 Dhote, Sharvari: A Compliant Orthoplanar Spring Based Piezoelectric Vibration Energy Harvester	17:20-17:40

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TS.FS08-2 520f

FS08 - Granular Materials and Flows
Chair: Eric DiGiuli

TS.FS08-2.01

Turnbull, Barbara: Ice as a granular material

TS.FS08-2.02

Vidal, Valérie: Gas-induced fluidization in water-saturated sands

TS.FS08-2.03

Clavaud, Cécile: Anomalous Low Friction Coefficient In Dense Suspensions

TS.FS08-2.04

Dorostkar, Omid: CFD-DEM study of saturated granular media; applications to fault gouge

TS.FS08-2.05

Forterre, Yoel: Impact in dense suspensions: Key role of pore-pressure

TS.FS08-2.06

Henann, David: Size dependence of the yield threshold in dense granular materials

TS.FS09-3 515bc

FS09 - Foams and Cellular Materials
Chair: Damiano Pasini

TS.FS09-3.01 (INVITED)

Lorenceau, Elise: Imbibition of dry aqueous foams by oil

TS.FS09-3.02

Liu, Lu: Failure mechanisms in AlSi10Mg lattices via in-situ compression tomography

TS.FS09-3.03

Ryvkin, Michael: Brittle fracture of hierarchical self-similar honeycombs

TS.FS09-3.04

Wang, Dong-Wei: Sound transmission through composite sandwich plate with pyramidal truss cores

TS.FS09-3.05

Xu, Hang: Stiff and strong Octet lattice with tunable coefficient of thermal expansion

TS.FS09-3.06

Zheng, Zhijun: Dynamic behavior and crashworthiness design of graded cellular structures

TS.FM04-3 522bc	TS.FM05-2 520d	TS.FM07-5 525ab	TS.FM09-2 524a	
FM04 - Compressible Flow <i>Chair: David Frost</i>	FM05 - Convection <i>Chair: Joerg Schumacher</i>	FM07 - Flow Instability and Transition <i>Chair: Xiaohua Wu</i>	FM09 - Geophysical and Environmental Fluid Dynamics <i>Chair: Paul Billant</i>	
TS.FM04-3.01 (INVITED) Jacquin, Laurent: Transonic airfoil buffet: A decade of research at ONERA	TS.FM05-2.01 Schmeling, Daniel: On the influence of the aspect ratio on structure formation in turbulent mixed convection	TS.FM07-5.01 Egorov, Ivan: Direct numerical simulations of laminar-turbulent transition in hypersonic flows over flat plate	TS.FM09-2.01 (INVITED) Dauxois, Thierry: Energy Cascade in Internal Wave Attractors	08:30-08:50
TS.FM04-3.02 Wang, Tiejun: Experiment on nonlinear growth of supersonic mixing layers	TS.FM05-2.02 Arakeri, Jaywant: Light propagation through axially homogeneous buoyancy driven turbulence	TS.FM07-5.02 Jallas, Damien: Wake deviation of a flapping foil: A symmetry-breaking bifurcation	TS.FM09-2.02 (INVITED) Heijst, Gertjan: Tidal flushing of semi-enclosed basins	08:50-09:10
TS.FM04-3.03 Tenaud, Christian: Shedding Intermittency in a Shock Wave-Laminar Boundary Layer Interaction	TS.FM05-2.03 Floryan, J. M.: Flow in a dual heated channel	TS.FM07-5.03 Kozlov, Victor: Longitudinal vortices and their secondary instability on swept wing	TS.FM09-2.03 Scase, Matthew: Suppression of the Rayleigh-Taylor Instability by Rotation	09:10-09:30
TS.FM04-3.04 Timofeev, Evgeny: Regular-to-Mach reflection transition on curved surfaces	TS.FM05-2.04 Tilgner, Andreas: High Rayleigh number convection with double diffusive fingers	TS.FM07-5.04 Lusseyran, François: Nonlinear temporal dynamics of axisymmetric wavepackets in subsonic jets	TS.FM09-2.04 Billant, Paul: Instabilities of baroclinic vortices in stratified-rotating fluids	09:30-09:50
TS.FM04-3.05 Grogan, Kevin: Detailed simulations of shock boundary layer interaction in shock tube experiments	TS.FM05-2.05 Tong, Peng: Boundary layer fluctuations and their effects on mean and variance temperature profiles	TS.FM07-5.05 Poncet, Sébastien: DNS of turbulent flows inside a simplified stage of high-pressure compressor	TS.FM09-2.05 Reinaud, Jean: Interaction of a surface Quasi-Geostrophic buoyancy strip and an internal vortex	09:50-10:10

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

TS.SM02-3 515a	TS.SM05-8 519b	TS.SM11-1 517d	TS.SM12-3 518b	
SM02 - Contact and Friction <i>Chair: Stanislaw Stupkiewicz</i>	SM05 - Fracture Mechanics <i>Chair: Ravi-Chandar Krishnaswamy</i>	SM11 - Multibody and Vehicle Dynamics <i>Chair: Niels Pedersen</i>	SM12 - Nanostructures and MEMS <i>Chair: Claudia Comi</i>	
TS.SM02-3.01 (INVITED) Yastrebov, Vladislav: Contact between rough surfaces: mechanical and transport phenomena at small scales	TS.SM05-8.01 (INVITED) Narasimhan, R.: Brittle-ductile transition in notched nanoscale metallic glass specimens	TS.SM11-1.01 (INVITED) Bruls, Olivier: Modelling of multibody systems in the local frame	TS.SM12-3.01 (INVITED) Misseroni, Diego: Serpentine motion through a frictionless channel	08:30-08:50
TS.SM02-3.02 Goryacheva, Irina: The system of indenters sliding over the viscoelastic half-space	TS.SM05-8.02 Korkolis, Yannis: Failure of an austenitic stainless steel under linear and non-linear loading paths	TS.SM11-1.02 Avedisov, Sergei: Analysis of vehicle handling for front wheel drive and rear wheel drive vehicles	TS.SM12-3.02 Lei, Xiao-Wen: Complex energy landscapes of carbon nanotubes with defects	08:50-09:10
TS.SM02-3.03 Proppe, Carsten: Multiscale modelling of dynamical systems with friction between randomly rough surfaces	TS.SM05-8.03 Liu, Yinghua: T-stress and mismatch constraint for a blunted creep crack	TS.SM11-1.03 Berbyuk, Viktor: Global sensitivity analysis and multiobjective optimization of bogie suspension	TS.SM12-3.03 Lengiewicz, Jakub: Two-Domain Model of Volumetric Actuators	09:10-09:30
TS.SM02-3.04 Diop, Thierno: Frictional Contact, Numerical Approximation and Algorithms	TS.SM05-8.04 Sartori, Cédric: Micromechanical Model for Ductile Porous Material under Dynamic Loading	TS.SM11-1.04 Eberhard, Peter: Coupling of Mechanical and Optical Methods for Simulations and Measurements	TS.SM12-3.04 Li, Teng: Anomalous scaling law of mechanical properties of cellulose nanopaper	09:30-09:50
TS.SM02-3.05 Perez Rafols, Francesc: An LCP based approach for the contact mechanics of elastic half spaces	TS.SM05-8.05 Rodríguez-Martínez, José: Multiple necking during biaxial loading of thermo-viscoplastic plates	TS.SM11-1.05 Zhao, Xiaonan: Nonlinear rotor motion: Influence of thrust bearings on subsynchronous oscillations	TS.SM12-3.05 Liechti, Kenneth: Graphene interactions by displacement-controlled nanoindentation	09:50-10:10

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TS.SM13-3	516a
SM13 - Plasticity, Viscoplasticity and Creep <i>Chair: Kostas Danas</i>	
TS.SM13-3.01 (INVITED)	Hütter, Markus: Stress-Tensor Expression in Two-Temperature Models for the Aging and Yielding of Glasses
TS.SM13-3.02	Le Graverend, Jean-Briac: 3D directional coarsening in single crystal superalloys for multiaxial applications
TS.SM13-3.03	Li, Jianjun: A theoretical model revealing strong strain hardening in gradient nano-grained materials
TS.SM13-3.04	Sauzay, Maxime: Internal stresses in deformation-induced microstructures
TS.SM13-3.05	Scales, Martin: Ductile Failure of an Aluminum Alloy Under Moderate to Low Triaxialities

TS.SM15-5	516b
SM15 - Computational Solid Mechanics <i>Chair: Bob Svendsen</i>	
TS.SM15-5.01	Dornisch, Wolfgang: Dual basis functions for isogeometric solid mechanics
TS.SM15-5.02	Papoulia, Katerina: Non-differentiable energy minimization for cohesive fracture
TS.SM15-5.03	Paggi, Marco: A computational framework for nonlinear contact between deformable excitable biological cells
TS.SM15-5.04	Waddad, Yassine: A multi-scale model for contact mechanics of rough surfaces
TS.SM15-5.05	Pierreux, Gerrit: Realistic RVE-geometries generation for Non-Crimp Fabric composites

TS.SM16-2	518c
SM16 - Vibrations and Control of Structures <i>Chair: Sam Asokanthan</i>	
TS.SM16-2.01 (INVITED)	Inman, Daniel: Metastructures for vibration suppression – Presented by Jared Hobeck
TS.SM16-2.02	Lu, Zeqi: Mechanical Vibration Isolation with Stochastic Resonance
TS.SM16-2.03	Mesh, Mikhail: Efficient algorithm for a nonlinear transient vibration problem
TS.SM16-2.04	Michailidis, Georgios: Modal basis approaches in shape and topology optimization of frequency response problems
TS.SM16-2.05	Perlikowski, Przemyslaw: Novel type of tuned mass damper with inerter

TS.FS05-2	521abc
FS05 - Porous Media <i>Chair: Christopher DeGroot</i>	
TS.FS05-2.01	Carmeliet, Jan: Multiscale investigation of imbibition, drainage and drying in macroporous media
TS.FS05-2.02	Chen, Mingyang: A multi-scale study on adsorption induced deformation of hybrid porous materials
TS.FS05-2.03	Hellmich, Christian: Liquid crystal interface micromechanics
TS.FS05-2.04	Gamnitzer, Peter: Numerical simulation of surface subsidence and heave in water saturated/unsaturated soil
TS.FS05-2.05	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	
FS06 - Fluid Structure Interactions <i>Chair: Mathias Heil</i>	FS07 - Actuating and Smart Materials <i>Chair: Dimitris Lagoudas</i>	FS08 - Granular Materials and Flows <i>Chair: Eric DiGiuli</i>	FS10 - Education in Mechanics <i>Chair: Keith Moffatt & Michael Gilchrist</i>	
TS.FS06-1.01 Nové-Josserand, Clotilde: Converting wave energy from fluid-elasticity interactions	TS.FS07-2.01 (INVITED) Patoor, Etienne: Influence of phase transformation anisotropy on transformation surface around a crack tip	TS.FS08-3.01 Umbanhowar, Paul: Controlling granular segregation patterns using unsteady flows	TS.FS10-1.01 Gilchrist, Michael: Use of student competitions to reinforce the learning experience in freshman mechanics education	08:30-08:50
TS.FS06-1.02 Boucher, Jean-Philippe: Optimal design of rectangular fins for underwater propulsion	TS.FS07-2.02 Zhou, Yue-Ting: The effect of surface waviness on contact behaviors in multiferroic structures	TS.FS08-3.02 Jop, Pierre: Instability during the erosion of a cohesive granular heap	TS.FS10-1.02 (INVITED) Shimomura, Yutaka: Mechanics for liberal arts students	08:50-09:10
TS.FS06-1.03 Dias, Frederic: A potential-flow model of viscous dissipation for the oscillating wave surger converter	TS.FS07-2.03 Jiang, Yunyao: The deformation mechanisms of new chiral structures	TS.FS08-3.03 Kang, Wenting: Experimental and theoretical study about depth-dependent drag force in granular matter	TS.FS10-1.03 Bigoni, Davide: Teaching structural mechanics with models	09:10-09:30
TS.FS06-1.04 Ducloué, Lucie: Multiple bubble propagation modes in elasto-rigid models of airway reopening	TS.FS07-2.04 Lagoudas, Dimitris: Predicting the constitutive response of smas on the basis of composition and heat treatment	TS.FS08-3.04 Windows-Yule, Christopher: The Influence of Non-uniform Vibration on Granular Jamming, Segregation and Self-assembly	TS.FS10-1.04 Chemisky, Yves: Interactive learning experience in mechanics of materials : The 'simmit' project	09:30-09:50
TS.FS06-1.05 Medraj, Mamoun: Water Droplet Impingement Erosion: Testing, Mechanisms and Improved Representation	TS.FS07-2.05 Lange, Stephan: Modeling ferromagnetic and multiferroic behavior based on a condensed method (CM)	TS.FS08-3.05 Lueptow, Richard: Modeling segregation in multidisperse granular flow	TS.FS10-1.05 Constantinescu, Andrei: Symbolic Computations: Changing the teaching paradigm for continuous mechanics	09:50-10:10

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TS.MS04-8	517d
MS04 - Nonlinear Dynamics of Engineering Systems – Nonlinear Dynamics and Energy Harvesting <i>Chairs: E. Pavlovskaja & T. Kapitaniak</i>	
TS.MS04-8.01	Mazzilli, Carlos: Non-synchronous free oscillations of Ziegler's column
TS.MS04-8.02	Chen, Li-Qun: Nonlinear Oscillation of a Circular Plate Energy Harvester
TS.MS04-8.03	Kecik, Krzysztof: Non-linear dynamics of a pendulum vibration absorber with a Maglev harvester
TS.MS04-8.04	Takahashi, Ryo: Possibility of Energy Extraction from Noise under Stochastic Resonance
TS.MS04-8.05	Renault, Alexandre: Hardening Softening Behavior of Antiresonance for Non Linear Torsional Vibration Absorbers

TS.FM04-4	522bc
FM04 - Compressible Flow Chair: Laurent Jacquin	
TS.FM04-4.01	Martínez-Ruiz, Daniel: On the interaction of oblique shocks and laminar mixing layer
TS.FM04-4.02	Arbos Torrent, Sara: Internal and external jet modes of an over-expanded tic nozzle
TS.FM04-4.03	Bonnet, Jean-Paul: Sonic flow control by plasma: a new pulsed jet actuator
TS.FM04-4.04	Zhang, Yang: Flow Visualization of High-speed Cavity Flows
TS.FM04-4.05	Tagawa, Yoshiyuki: Structure of a laser-induced shock wave in water

TS.FM05-3	520d
FM05 - Convection Chair: Olga Shishkina	
TS.FM05-3.01	Du Puits, Ronald: Boundary layers in turbulent Rayleigh-Bénard convection: The 3D velocity field
TS.FM05-3.02	Ching, Emily S.C.: Turbulent Rayleigh-Bénard convection with polymers
TS.FM05-3.03	Chong, Kai Leong: Effect of confinement on global heat transfer scaling in Rayleigh-Bénard convection
TS.FM05-3.04	Zhang, Jun: Dynamics of a free boundary atop thermal convection
TS.FM05-3.05	Goluskin, David: Zonal flows in Rayleigh-Bénard convection

TS.FM07-6	525ab
FM07 - Flow Instability and Transition Chair: Sherwin Maslowe	
TS.FM07-6.01	Kaiser, Robert: Large-scale flow modes in turbulent Rayleigh-Bénard convection
TS.FM07-6.02	Yakeno, Aiko: Transient dynamics and stability on spanwise-oscillatory turbulent channel
TS.FM07-6.03	Yokoyama, Naoto: Initial-condition dependence of large-scale structures in rotating turbulence
TS.FM07-6.04	Xie, Chenyue: Viscous Rayleigh-Taylor instability with and without the diffusion effect
TS.FM07-6.05	Leonov, Sergey: Boundary layer receptivity to transient plasma in $m=4.5$ airflow

TS.FM09-3 524a	TS.FM10-3 520abc	TS.FM11-3 524bc	TS.FM15-3 520e	
FM09 - Geophysical and Environmental Fluid Dynamics <i>Chair: Michael Waite</i>	FM10 - Low Reynolds Number Flow <i>Chair: Elisabeth Lemaire</i>	FM11 - Micro- and Nano-fluidics <i>Chair: Mauro Sbragaglia</i>	FM15 - Vortex Dynamics <i>Chair: Henryk Kudela</i>	
TS.FM09-3.01 Davaranah Jazi, Shahrzad: Enhanced Sedimentation Beneath Sediment Laden Overflows and Interflows	TS.FM10-3.01 (INVITED) Ardekani, Arezoo: Collective motion of microorganisms in complex fluids	TS.FM11-3.01 Rosello, Maxime: Influence of nozzle shape on the break-up of non-newtonian ink jets	TS.FM15-3.01 Ko, Lok Sun: Experimental investigation of a slender delta wing with apex and tail flap control	10:30-10:50
TS.FM09-3.02 Shimokawa, Shinya: Oceanic oscillation phenomena related synchronization and stochastic resonance	TS.FM10-3.02 Djellouli, Adel: Artificial swimmers through shell buckling	TS.FM11-3.02 (INVITED) Duan, Huiling: Underwater superhydrophobicity: Fundamentals and applications	TS.FM15-3.02 Rockwood, Matthew: Determining the shedding time of vortices in real-time	10:50-11:10
TS.FM09-3.03 Khani, Sina: Evaluation of eddy- and non-eddy-viscosity subgrid scale models in stratified turbulence	TS.FM10-3.03 Barthes-Biesel, Dominique: Effect of membrane bending resistance on capsule wrinkling in simple shear flow	TS.FM11-3.03 Nold, Andreas: From the nano- to the macroscale - Bridging scales for the moving contact line problem	TS.FM15-3.03 Fukumoto, Yasuhide: Motion of a vortex pair at high and low Reynolds numbers	11:10-11:30
TS.FM09-3.04 Penney, Jared: Numerical simulation of free-slip double-diffusive gravity currents	TS.FM10-3.04 Amah, Edison: Electric Field Driven Hierarchical Self-assembly of Monolayers of Mixtures of Particles	TS.FM11-3.04 Park, Joonsik: Measurement of apparent slip near a high speed receding contact line on a hydrophobic surface	TS.FM15-3.04 Llewellyn Smith, Stefan: Motion of a compressible vortex pair	11:30-11:50
TS.FM09-3.05 Laizet, Sylvain: Reynolds number effects for non-channelized non-axisymmetric particle-driven gravity currents	TS.FM10-3.05 Bonnecaze, Roger: Multi-scale model of magnetically-driven flows in dead-end channels	TS.FM11-3.05 Fullana, Jose Maria: Effect of the lubrication film on the droplet dynamics in a Hele-Shaw microchannel	TS.FM15-3.05 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
	SM01 - Biomechanics and Biomaterials <i>Chair: Jim Johnson</i>	SM05 - Fracture Mechanics <i>Chair: R. Narasimhan</i>	SM11 - Multibody and Vehicle Dynamics <i>Chair: Robert Seifried</i>	SM12 - Nanostructures and MEMS <i>Chair: Kenneth Liechti</i>
10:30-10:50	TS.SM01-4.01 (INVITED) Long, Mian: Biomechanics of hepatic cells and engineered construction of liver	TS.SM05-9.01 Ravi-Chandar, Ravi: Emergence of echelon cracks under mixed-mode I + III loading	TS.SM11-2.01 (INVITED) Ellermann, Katrin: Parameter estimation in vehicle dynamics: Train, track and fault monitoring	TS.SM12-4.01 (INVITED) Zhu, Yong: Giant Anelasticity and Energy Dissipation in Single-Crystalline Nanowires
10:50-11:10	TS.SM01-4.02 Spector, Alexander: Mechanics of stem cell myogenesis	TS.SM05-9.02 Kolvin, Itamar: Crack front dynamics	TS.SM11-2.02 Liu, Jiapeng: The evaluation of steering performance of drilling assemblies based on multibody dynamics approach	TS.SM12-4.02 Linne, Marissa: Examination of interactions between deformation mechanisms in fcc thin films using SEM-DIC
11:10-11:30	TS.SM01-4.03 Belay, Tsegay: The role of line tension on budding formation induced by diffusion of proteins on lipid bilayer	TS.SM05-9.03 Sherman, Dov: Crack dynamics in brittle crystals at the low energy speed regime	TS.SM11-2.03 Meijaard, Jacob: A modified generalized strain formulation for flexible multibody system modelling	TS.SM12-4.03 Mirzazadeh, Ramin: On-chip testing device for the micromechanical characterization of polysilicon films
11:30-11:50	TS.SM01-4.04 Biria, Aisa: The conformational change of animal cells during cytokinesis	TS.SM05-9.04 Kaliske, Michael: Approaches for dynamic fracture simulation: r-adaptive material force and phase-field method	TS.SM11-2.04 Orosz, Gabor: Analysis of Heterogeneous Connected Vehicles via Modal Perturbation Method	TS.SM12-4.04 Pan, Fei: Stiffness threshold of randomly distributed carbon nanotube networks
11:50-12:10	TS.SM01-4.05 Franck, Christian: Mean deformation metrics for quantifying 3D cell-matrix interactions	TS.SM05-9.05 Vandenbergh, Nicolas: Fragmentation as an aggregation process	TS.SM11-2.05 Schiehlen, Werner: From IUTAM Symposia to the International Association of Vehicle System Dynamics	TS.SM12-4.05 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	
SM13 - Plasticity, Viscoplasticity and Creep <i>Chair: Georg Dolzmann</i>	SM15 - Computational Solid Mechanics <i>Chair: Manas Upadhyay</i>	SM16 - Vibrations and Control of Structures <i>Chair: Sam Asokanathan</i>	FS05 - Porous Media <i>Chair: Christian Hellmich</i>	
TS.SM13-4.01 (INVITED) Leblond, Jean-Baptiste: Toward a general description of transformation plasticity in metals and alloys	TS.SM15-6.01 Ghaisas, Niranjana: Unified treatment of shocks and material interfaces in hyperelastic solids and fluids	TS.SM16-3.01 (INVITED) Keogh, Patrick: Control of contact events in active rotor dynamic systems	TS.FS05-3.01 Lodge, Michel: Tension and tomographic measurements while draining water from a granular sample	10:30-10:50
TS.SM13-4.02 Skoczko, Blaz: Constitutive model of serrated yielding at extremely low temperatures including radiation damage	TS.SM15-6.02 Polyzois, Ioannis: Simulating the microstructural failure mechanism of shear bands in steel	TS.SM16-3.02 Reshmin, Sergey: Time-Optimal Control for Pendulum-Like Systems in Case of Large Control Bounds	TS.FS05-3.02 Schrefler, Bernhard: Shear and mixed mode fracture in disordered saturated porous media	10:50-11:10
TS.SM13-4.03 Tabin, Jakub: Strain localization during discontinuous plastic flow at extremely low temperatures	TS.SM15-6.03 Fan, S C: Strain-rate-dependent cohesive law in modelling breakup of earth covered magazine	TS.SM16-3.03 Mal, Ajit: Semi-analytical modeling of substrate loss of miniature resonators	TS.FS05-3.03 Shang, Zhihao: Competitive adsorption of gas mixtures in fractal slit nanopores	11:10-11:30
TS.SM13-4.04 Tang, Xiaozhi: Thermally Activated Mechanisms in the Dislocation Plasticity at Variant Strain Rates	TS.SM15-6.04 Vidyasagar, Vidyasagar: Spectral Methods for Electromechanical Coupling in Ferroelectrics	TS.SM16-3.04 Tang, You-Qi: Parametric and internal resonance of axially accelerating viscoelastic beams	TS.FS05-3.04 Shao, Jianfu: A micro-macro mechanical model for porous rock-like materials with a pressure-sensitive matrix	11:30-11:50
TS.SM13-4.05 Idiart, Martin: Bounds for the plastic strength of polycrystalline voided solids	TS.SM15-6.05 Sattarpanah Karganroudi, Sasan: Validation and verification of a non-rigid part inspection method	TS.SM16-3.05 Tyrell, Nathan: Attitude control via structural vibration	TS.FS05-3.05 Huang, Zhangfeng: Effect of local porous coating on the stability of boundary layer	11:50-12:10

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TS.FS06-2	515bc
FS06 - Fluid Structure Interactions <i>Chair: Michael Paidoussis</i>	
TS.FS06-2.01	Hanna, James: Catenaries in viscous fluid
TS.FS06-2.02	Kamrin, Ken: Eulerian Method for FSI Based on the Reference Map
TS.FS06-2.03	Labbé, Romain: Mist harvesting with vertical fibers
TS.FS06-2.04	Luzzatto-Fegiz, Paolo: Entrainment models of turbine wakes, wind farms, and flow adjustment in canopies
TS.FS06-2.05	Griffith, Martin: Energy-harvesting from flow-induced vibration of circular and elliptical cylinders

TS.FS07-3	518a
FS07 - Actuating and Smart Materials <i>Chair: Yue-Ting Zhou</i>	
TS.FS07-3.01	Meraghni, Fodil: Cyclic loading effects on NiTi alloys under biaxial conditions
TS.FS07-3.02	Wingen, Marius: Effects of switching processes in ferroelectrics on the temperature: A modeling approach
TS.FS07-3.03	Srinivasan, Prashanth: Molecular Dynamics Simulations of Phase Transformations in NiTi Bicrystals
TS.FS07-3.04	Tobushi, Hisaaki: Functionally-graded and composite shape memory actuation
TS.FS07-3.05	Zhang, Xiaolong: Modeling of the Chemo-mechanical Behaviors of Reactive Materials

TS.FS08-4	520f
FS08 - Granular Materials and Flows <i>Chair: tba</i>	
TS.FS08-4.01	Marteau, Eloise: Micromechanics of granular materials: An experimental investigation of shear behavior
TS.FS08-4.02	Mathonnet, Jean-Eric: Singular behavior of a cohesive powder under horizontal vibrations
TS.FS08-4.03	Maurin, Raphael: Granular rheology in bedload transport
TS.FS08-4.04	Merceron, Aymeric: Reorganization of a granular medium around a localized transformation
TS.FS08-4.05	Morize, Cyprien: How do fish hide in the sand? Erosion by an oscillating foil

TS.FS10-2	519a
FS10 - Education in Mechanics <i>Chair: Keith Moffatt & Michael Gilchrist</i>	
TS.FS10-2.01 (INVITED)	Stern, Catalina: Teaching physics through experimental projects
TS.FS10-2.02 (INVITED)	Wiercigroch, Marian: Nonlinear mechanics for undergraduates
TS.FS10-2.03	Pustovalova, Olga: FlexPDE as a teaching tool in the field of mechanics and mathematical modelling
TS.FS10-2.04	Wilson, Helen: The fluid dynamics of the chocolate fountain: An engaging project

TS.MS04-9 517d	TS.FM04-5 522bc	TS.FM05-4 520d	TS.FM07-7 525ab	
MS04 - Nonlinear Dynamics of Engineering Systems – Dynamical Interactions in Coupled Systems <i>Chairs: F. Romeo & M. Wiercigroch</i>	FM04 - Compressible Flow Chair: Azemi Benaissa	FM05 - Convection Chair: Jin-Qiang Zhong	FM07 - Flow Instability and Transition Chair: François Gallaire	
TS.MS04-9.01 Manevitch, Leonid: Strongly Nonlinear Resonance Dynamics of Quasi-One-Dimensional Finite Oscillatory Chains	TS.FM04-5.01 (INVITED) Vanstone, Leon: Effect of upstream disturbances on the unsteadiness of swept-ramp interactions at mach 2	TS.FM05-4.01 Kelley, Douglas: Low-dimensional convection models from vector cylindrical harmonics	TS.FM07-7.01 Luchini, Paolo: Higher-order WKBJ correction in spatially-developing open flows	13:10-13:30
TS.MS04-9.02 Gendelman, Oleg: Accelerating Oscillatory Fronts in a Sonic Vacuum with Non-local Interactions	TS.FM04-5.02 Karimi, Mona: Kelvin-Helmholtz instability in compressible shear flows: Effect of wavenumber	TS.FM05-4.02 Kunnen, Rudie: Turbulent rotating convection: A Lagrangian perspective	TS.FM07-7.02 Ziade, Paul: Sensibility of Rayleigh and Orr-Sommerfeld equations to changes in base flow	13:30-13:50
TS.MS04-9.03 Charlemagne, Simon: Nonlinear Interactions Between Coupled Nonlinear Oscillators at Different Layers of Time	TS.FM04-5.03 Kosinov, Alexander: Excitation of the streaks by weak shock waves in the supersonic boundary layer	TS.FM05-4.03 Shaw, Raymond: Cloud formation through isobaric mixing in turbulent Rayleigh-Bénard convection	TS.FM07-7.03 Bihi, Ilyesse: Microparticles effects on the stability of an air-water interface	13:50-14:10
TS.MS04-9.04 Moleron, Miguel: Synchronized Frequency Conversion in Nonlinear Lattices		TS.FM05-4.04 Xi, Heng-Dong: The Role of Higher Order Flow Modes in Turbulent Thermal Convection	TS.FM07-7.04 Gepner, Stanislaw: Stability of flow in a diverging-converging channel at moderate amplitudes of corrugation	14:10-14:30
TS.MS04-9.05 Kapitaniak, Tomasz: Chimera states for coupled pendula		TS.FM05-4.05 Abtahi, Arman: On the analysis of flows in heated corrugated conduits	TS.FM07-7.05 Ren, Jie: Secondary instabilities of Görtler vortices in high-speed boundary layer flows	14:30-14:50

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	TS.FM08-3 521abc	TS.FM09-4 524a	TS.FM10-4 520abc	TS.FM15-4 520e
	FM08 - Flow in Thin Films <i>Chair: Oliver Jensen</i>	FM09 - Geophysical and Environmental Fluid Dynamics <i>Chair: Yoshifumi Kimura</i>	FM10 - Low Reynolds Number Flow <i>Chair: Arezoo Ardekani</i>	FM15 - Vortex Dynamics <i>Chair: Mark Stremmer and Robert Kerr</i>
13:10-13:30	TS.FM08-3.01 (INVITED) Vila, Jean-Paul: 2D versus 1D models for thin film flows	TS.FM09-4.01 (INVITED) Waite, Michael: Numerical simulations of the atmospheric kinetic energy spectrum	TS.FM10-4.01 (INVITED) Ramchandran, Arun: Hele-Shaw flow of a concentrated, non-colloidal suspension	TS.FM15-4.01 Kudela, Henryk: Collapse Vortices and Filaments of Vorticity
13:30-13:50	TS.FM08-3.02 Noble, Pascal: Numerical simulations of capillary thin film flows under hyperbolic CFL conditions	TS.FM09-4.02 Kimura, Yoshifumi: Temperature front genesis in stably stratified turbulence	TS.FM10-4.02 Kim, Jungchul: Particle-induced viscous fingering	TS.FM15-4.02 (INVITED) Le Dizes, Stéphane: Curvature and elliptic instabilities in helical vortices
13:50-14:10	TS.FM08-3.03 Sellier, Mathieu: Towards optimal crêpe making	TS.FM09-4.03 Hossain, Md Monir: Simulation of flow field inside a coral colony	TS.FM10-4.03 Cater, John: Flow in a Human Nasal Cavity Obtained by Improved Shape Standardization	TS.FM15-4.03 Delbende, Ivan: Simulations of Helical Vortex Instability
14:10-14:30	TS.FM08-3.04 Scheichl, Bernhard: Capillary effects and short-scale interaction in a weakly viscous supercritical overfall	TS.FM09-4.04 Gurka, Roi: 3D POD examination of streamwise enstrophy in a stably stratified sphere wake	TS.FM10-4.04 Cebers, Andrejs: Magnetic micro-convection	TS.FM15-4.04 Wood, David: The Use of Helical Vortex Solutions in Wind Turbine Performance Analysis
14:30-14:50	TS.FM08-3.05 Christensen, Kenneth: Flow Interactions Between Water and CO ₂ in 2D Heterogeneous Porous Micromodels	TS.FM09-4.05 Mizerski, Krzysztof: New turbulent large-scale magnetic dynamo mechanism	TS.FM10-4.05 Yu, Jie: Ratcheting viscous fluids in a vibrating channel	TS.FM15-4.05 Heil, Matthias: Topological fluid mechanics of the formation of the Karman-vortex street

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SM01 - Biomechanics and Biomaterials <i>Chair: Vikram Deshpande</i>	SM02 - Contact and Friction <i>Chair: Stanislaw Stupkiewicz</i>	SM05 - Fracture Mechanics <i>Chair: Jeff Kysar</i>	SM08 - Multi-component Materials and Composites <i>Chair: Walerian Szyszkowski</i>	
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15:10-16:10

CL – Closing Lecture

Chair: JB Leblond

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Room 517abc

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