IUTAM Symposium on **Recent Advances in Moving Boundary Problems in Mechanics**

Announcement & Call for Papers

Important Deadlines

- Submission of Abstracts
  October 20, 2017
- Notification of Acceptance
  November 24, 2017
- Early Bird Registration
  November 30, 2017

Local Organizing Committee

Rosalind Archer
Joel Balmer
Sid Becker
Richard Clarke
Stefanie Gutschmidt
James Hewett
Mark Jermy
Miguel Moyers Gonzalez
Mathieu Sellier
Phillip Wilson

Symposium Organization

Dr Stefanie Gutschmidt
A/Prof Mathieu Sellier

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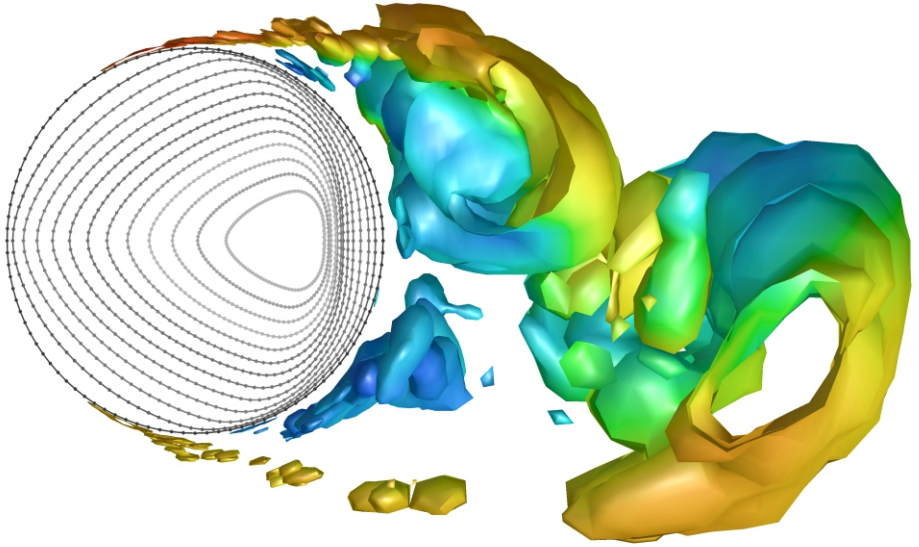
Co-Sponsors

UC ENGINEERING

IUTAM International Union of Theoretical and Applied Mechanics



IUTAM Symposium on

Recent Advances in Moving Boundary Problems in Mechanics

Christchurch, New Zealand
February 12-15, 2018

UC UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

www.IUTAM2018.nz

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Christchurch, New Zealand, February 12-15, 2018

Artist's Impression: Courtesy of Jackson Architecture, Warran and Mahoney

Venue

The symposium takes place under the patronage of the University of Canterbury (UC), which was established as Canterbury College in 1873 and is one of the top engineering universities in New Zealand. It will be held in the newly built Engineering Core Building (see Figure above) on UC's beautiful campus approximately 5 km West of Christchurch City Centre. The location is a perfect base to explore Christchurch and vicinity with its rich cultural and natural options. Christchurch is conveniently connected to the rest of the world by direct flights from Singapore, Fiji, Thailand, China and Australia. The university campus and city centre are located 15 min (by car or shuttle) away from the airport. Christchurch is also close to world-famous, breath-taking, untouched nature and a UNESCO World Heritage observatory, which may be explored during an excursion to be organized in the context of the Symposium.

private photograph by Dennis Roeser taken from Mt. John Observatory

Announcement & Call for Papers

Authors wishing to contribute to the Symposium are invited to submit a two-page abstract, clearly stating the objectives, results and conclusions of the work to be discussed in the presentation. Selected papers will be published in Procedia IUTAM.

Confirmation of participation in the Symposium by the authors will be required when papers are accepted. Only confirmed presentations of registered participants will be included in the final programme. This will enable the participants to fully benefit from the contributions and discussions.

Aim & Scope

Many problems in mechanics involve deformable domains with moving boundaries. Examples include fluid-structure interaction, free surface flows, flows over soft tissues and textiles, flows involving accretion/erosion, flows through deformable porous media, material forming, shape optimization, to name but a few. The interaction of the moving boundary with the participating media leads to fascinating phenomena in a very broad range of contexts such as flutter, wave-breaking, dune formation, ripple formation on the ocean floor, flow instabilities, structure resonance and failure, atherosclerosis, ice formation on aircraft wings.

The presence of a moving boundary presents considerable challenges when it comes to modelling and understanding the underlying system dynamics. The moving boundary often introduces nonlinearities which call for special analytical or numerical treatment. Many techniques have been developed over the years to handle moving boundaries. Examples include front tracking and fixing methods (FFM), the volume of fluid (VOF) method, the arbitrary Lagrangian Eulerian method, immersed boundary concepts, etc.. These methods have allowed the community to tackle complex problems of engineering and physics but many challenges still remain.

This symposium, the first IUTAM Symposium in New Zealand, will gather the community of engineers and scientists involved in moving boundary problems in mechanics. It will foster interactions between researchers working on the development of mathematical methods, algorithms and their applications. We also encourage people who perform experiments related to moving boundary problems to participate. Since the community of researchers involved in moving boundary problems in mechanics is fairly fragmented, we believe that this symposium will be a unique opportunity to cross-fertilize ideas and concepts from different disciplines of mechanics and foster engineering applications.

Scientific Committee

The Symposium is supervised by the International **Scientific Committee:**

Stefanie Gutschmidt (chair)
Mathieu Sellier (co-chair)
Jim Denier, Australia
J Maciej Floryan, Canada
Peter Hagedorn, Germany
Oliver Jensen, United Kingdom
Timothy Myers, Spain
Stephane Popinet, France

IUTAM Representative:
Peter Eberhard, Germany