



NEWSLETTER – No. 9

October 2016

Welcome to the ninth newsletter of the Australasian Fluid Mechanics Society. Under its president Hugh Blackburn, the AFMS committees have been active on a number of new initiatives over the last year; those that have arrived at the stage of implementation are described in this newsletter. The AFMS finances are in a healthy state and this has permitted the Society to introduce two new types of student awards/prizes while continuing to support the AFMC student-presentation prizes that were introduced at the 19AFMC. We all look forward to the 20AFMC being held in Western Australia in December that provides an opportunity for members of our community to come together in person every two years.

NEWS

Vale Bob Bilger

The AFMS pays tribute to Emeritus Professor Robert William (Bob) Bilger FAA FTSE (1935–2015) who was a leading contributor to combustion engineering and the modelling of turbulent reacting flows. His work also encompassed the broader area of fluid mechanics of reacting flows, pollutant formation and control, and air pollution. The Australian part of his academic career was spent principally at the University of Sydney. Bob was also an inaugural fellow (elected 2010) of the AFMS.

An obituary published by the ATSE can be found at:

<https://www.science.org.au/academy-newsletter/australian-academy-science-newsletter-102/obituaries>

AHMT2016 Report

The 10th Australasian Heat and Mass Transfer Conference took place in Brisbane, 14th-15th July 2016, being hosted by Queensland University of Technology (QUT) at its Gardens Point campus in Brisbane.

The purpose of the Australasian Heat and Mass Transfer (AHMT) conference series, under the auspices of the Australasian Fluid and Thermal Engineering Society (AFTES), is to provide a platform for researchers to meet and disseminate new knowledge in heat and mass transfer research and development. The conference was chaired by Professor Ted Steinberg with Drs Emilie Sauret and Suvash Saha as general secretaries.

The conference was a success, attended by over 40 participants and included 3 plenary speakers. The conference covered both fundamental and applied topics in the broad areas of convection, conduction, radiation, turbulence, multi-phase flow, combustion, food and wood drying, heat exchangers, computational methods and experimental developments. Undergraduate and postgraduate students also attended thereby fostering the next generation of researchers in heat and mass transfer. There was an ample scope for networking and the exchange ideas among members of the Australasian heat and mass transfer community.



Professor Steve Armfield delivering a plenary lecture at the 10th AHMT Conference

The first plenary lecture was delivered by A/Prof Evelyn Wang from MIT, an expert in micro/nanoscale heat and mass transfer and the second was presented by Prof Steve Armfield from the University of Sydney with a lecture entitled “Simulation and scaling of laminar and turbulent fountains”. The third plenary speaker was Prof Ian Turner from QUT who spoke on multiscale modelling approaches for wood drying.

Following a discussion hosted by the AFTES Executive Committee, members of the AFTES

decided that future AHMT conferences will be held biennially. The next AHMT conference will be organized by Prof Gary Rosengarten at RMIT in 2018.

20AFMC Preparations

Preparations are well-advanced for the AFMS's flagship conference, the 20th Australasian Fluid Mechanics Conference being held on the UWA campus from Sunday December 4 to Thursday December 8 2016. Over three-hundred contributed papers have been received, a number that indicates the wealth of activity occurring in Fluid Mechanics research in our region.

The diversity of topics covered by the contributed papers is reflected by the invited speakers. The Batchelor lecture will be delivered by **Paul Linden (Cambridge)**, speaking on "**New developments in the understanding of stratified turbulence**". The further invited speakers are:

- **Roman Stocker** (ETH Zurich) – Title: 'The fluid mechanics of plankton'
- **Charles Williamson** (Cornell) - Topic: Wakes, Fluid-structure interaction, Vortex instabilities
- **Nick Hutchins** (Melbourne) - Topic: Turbulent boundary layers and active flow control
- **Leslie Yeo** (RMIT)- Title: 'Microscale fluid-structure interaction: something old, something new, and something unexpected'
- **Robert Dalrymple** (Johns Hopkins) - Title: 'Breaking waves in the surf zone'
- **Sonya Legg** (Princeton) – Topic: Environmental fluid mechanics, Ocean turbulence and mixing,

The AFMS will award named **prizes for the best student presentations** at the 20AFMC. Between 3 to 6 prizes (to the value of \$250) will be awarded. Each named prize serves to (i) Honour the memory and influence of an eminent Australasian Fluid Mechanician, (ii) Recognise and reward excellence in the quality of research-student presentations, (iii) Encourage student participation in the AFMC, and (iv) Promote the importance of presentational skills in the research community. Note that all student-presenters will automatically be eligible for a prize with their presentations being assessed by judges drawn from the AFMS committee and other senior delegates at the conference with the announcement of the prize winners made at the conference banquet.

Registration for the conference is now open and readers are directed to the conference website at <http://www.afms.org.au/20AFMC/> for the latest news and announcements.

AFMC Student Participation Awards

The AFMS has introduced awards to encourage and support student participation in the AFMC series. Up to 10 of these competitive awards, comprising a registration-fee waiver,

have been made available by the AFMS and are available to students who are presenting a paper at the AFMC through an application process.

The selection criteria comprise two elements, namely the quality of the paper accepted and the demonstrated need for support to attend the conference; the latter criterion is evidenced by a statement of need and ensuing benefit, the costs of attending (given that it proves more expensive for students at more distant locations from the host city to attend), and a supporting statement from the student's supervisor.

This scheme has been introduced for the forthcoming 20AFMC with calls for application via the AFMS membership and through the conference website. With the closing date now passed, over thirty applications have been received and these are in the process of being judged.

ANNOUNCEMENTS

21 AFMC in 2018

Through an interim process, while AFMS policy was being updated, the AFMS Council received a documented presentation from the University of Adelaide who were then awarded the right to host the 21st AFMC.

The AFMS congratulates Adelaide as the host city, the University of Adelaide as the principal host, and Richard Kelso as the leader of the bid. Richard has already been working closely with the AFMS on the structure and details of the 21AFMC.

The new bidding process for future AFMCs will see call for preliminary applications in early 2017 to host the 22AFMC to be held in 2020. Details of the process are available on the AFMS website.

Fluid Mechanics Video Competition

The AFMS is pleased to announce its first AFMS video competition. Its purpose is to showcase the beauty and fascination of fluid mechanics to both our community and to the wider public by documenting exciting advances in research, education, and applications through a short (maximum four minutes) video format.

This competition has been organized by the AFMS Outreach Sub-Committee comprising Richard Kelso, Richard Manasseh, Jim Denier and Shaun Chan who will serve as the panel of judges.

Details covering the rules, submission process and awards can be found at the following link.

<http://www.afms.org.au/data/afms-callforvideo-2016-versubmit.pdf>

Three prizes of \$500, \$300 and \$200 and certificates will be awarded with the winning entries being announced at the 20AFMC in December. The videos will also be featured on the AFMS gallery webpage.

Note that the deadline for submissions is 31st October 2016 and so there is still time to create and submit your video.

Australian Ocean Renewable Energy Symposium: Tuesday 18 - Thursday 20 Oct 2016

This symposium, being held at the Vibe Hotel Savoy, 630 Little Collins St, Melbourne, VIC, aims to foster collaboration and plan for the future of the Australian ocean renewable energy sector, bringing industry, researchers and other stakeholders together to share information and ideas. Four international leaders in their field will deliver keynote presentations to provide the global context.

- Dr Andrea Copping (PNNL, USA)
- Dr Matt Folley (QUB, UK)
- Dr Gareth Gretton (AWATEA Chair, NZ)
- Martin Murphy (MEP Chair, UK)

The first two days of the symposium will provide a perspective of the current status of Australia's ocean renewable energy sector via presentations taken from submitted abstracts. The first day will focus on engineering developments, and the second will look at industry developments and environmental measurement, resource and impact considerations.

While it is clearly too late to submit a paper, any person wishing to attend the symposium may contact the organisers via the symposium website at:

<http://www.wamsi.org.au/events/australian-ocean-renewable-energy-symposium>

AFMS Website

The AFMS website is gradually being developed with a number of new tabs and entries being introduced over the last year. This process is ongoing and serves to evolve the site into a central source of information and announcements for AFMS members. Please take a look at the website at: <http://www.afms.org.au>

ENDPIECE

If you would like to contribute an item for inclusion in a following newsletter, then please contact the secretary of the AFMS at t.lucey@curtin.edu.au

The Society's website can be found at: <http://www.afms.org.au>

This newsletter's fluid-mechanics image (next page) is provided by Prof. Hubert Chanson at the University of Queensland. **More submissions are requested for future editions of the newsletter and for the AFMS gallery.**



Tidal bore of the Garonne River (France): A tidal bore is an unsteady rapidly-varied free-surface flow generated by the rapid rise in water elevation during the early flood tide, when the tidal range exceeds 4.5 to 6 m and the channel bathymetry amplifies the flood tidal wave. The photograph shows the tidal bore of the Garonne River at Podensac (France) on 23 August 2013, about 28 km upstream of the city of Bordeaux. Detailed field measurements were conducted in this tidal bore (Reungoat, D., Chanson, H., and Keevil, C.E. (2015), *Journal of Hydraulic Research*, IAHR, Vol. 53, No. 3, pp. 291-301 (DOI: 10.1080/00221686.2015.1021717)).