



AUSTRALASIAN
FLUID
MECHANICS
SOCIETY

NEWSLETTER – No. 7

August 2014

Welcome to the seventh newsletter of the Australasian Fluid Mechanics Society. The Executive Committee of the Society has met twice this year, with a third meeting scheduled for Tuesday 2nd September and the final meeting for the year to be held in December. It has been a busy year gearing up for the 19AFMC, to be held in Melbourne, Australia in December. A number of policies have been adopted, with others being drafted, and a number of subcommittees have also been formed; these endeavours are outlined below.

NEWS

Vale Ray Stalker

As Australia's first Professor of Space Engineering and pioneer of the world's fastest jet engine, the Scramjet, Professor Raymond Stalker is remembered as a pioneer within the field of Hypersonics. Establishing UQ's Centre for Hypersonics and having invented the free-piston shock tunnel (known as the Stalker tunnel), Professor Stalker is also renowned for designing the first scramjet that was demonstrated to produce more thrust than drag. Professor Ray Stalker received a plethora of accolades and honours during his career including the Order of Australia, and was the only Australian Fellow of the American Institute of Aeronautics and Astronautics (AIAA). Even after retirement Ray continued to be involved with his research group and contributed to realising his vision of an affordable Australian space program. Ray's life work laid the foundations for a respected Australian presence in hypersonic aerodynamics. After a valiant and determined struggle with Parkinson's disease and the after-effects of his stroke, Ray passed away on the 9th of February 2014.

Ray's life and legacy will be celebrated at the upcoming 19AFMC and through a student-paper presentation prize.

(Obituary communicated by Bianca Capra and with grateful acknowledgment to the University of Queensland)

19AFMC

The organisation of the 19th Australasian Fluid Mechanics Conference hosted by RMIT University in Melbourne is well advanced. (See: <http://www.afms.org.au/19AFMC/>) The call for abstracts drew 505 submissions of which some 50 were rejected. The organising committee has very recently received the full papers. Members of the AFMS are requested, if called upon, to assist in the review process of these papers. All the signs indicate that the conference will be very well attended by the Australasian Fluid Mechanics community and provide a stimulating forum for both scientific exchanges and networking with colleagues and friends.

AFMS submission on the Australian Renewable Energy Agency (Repeal) Bill 2014

On 15th July 2014, the Society made a submission to the Senate Standing Committees on Economics regarding the Australian Renewable Energy Agency (Repeal) Bill 2014. [Click here](#) to read the submission. Special thanks are due to member Evatt Hawkes for leading the preparation of the submission.

Congratulations to Professor Ivan Marusic

Congratulations to Ivan (Treasurer and inaugural President of the AFMS) on his election to Fellow of the Australian Academy of Sciences for his “contributions to fluid mechanics, most notably advancing our understanding of wall-bounded turbulent flows” (FAA citation).

ANNOUNCEMENTS

Subcommittees

To improve progress on a number of matters and implement important new developments being undertaken by the Society, a number of subcommittees have been formed over the course of 2014. These are as follow.

Student prizes

Wenxian Lin (Chair)
Ross Griffiths
Tony Lucey

ARC CoE

Steve Armfield (Chair)
Tony Lucey
Ivan Marusic

Fellowships

Richard Manasseh (Chair)
Hugh Blackburn
David Boger
Lex Smits

20 AFMC

Richard Manasseh (Chair)
Ivan Marusic
Roger Nokes
Julio Soria

Winter School

Richard Kelso (Chair)
Jim Denier
Richard Manasseh

Regional Branches

Jim Denier (Chair)
Bianca Capra
Jess Walker

Local non-AFMS conference support

Jim Denier (Chair)
Bianca Capra
Richard Manasseh
Julio Soria

AFMS Policies

The outcomes of initiatives pursued by the sub-committees listed above are now being captured through the development of policies to ensure clarity and uniformity of processes and procedures within the Society. Once accepted by the Executive Committee of the Society, the policy documents are being made available to the Society's membership via a repository; the start of this development can be found at [the Society's webpage](#).

Regional Branches

At the most recent Executive Committee meeting in June, the Vice-President of the Society, Jim Denier, proposed establishing regional branches (or chapters) of the Society. Local branches can empower and engage members who live and work in the more isolated areas of Australasia and provide them with greater visibility within the Society and the Fluid Mechanics community in general. The Executive is now very keen to see this idea flourish and a Regional Branches Sub-committee, chaired by Jim Denier, has been formed. The sub-committee is currently drafting a policy that will detail the operation and support for regional branches; this should be available on the Society's website soon.

AFMS LinkedIn group

Executive Committee member Jess Walker has established a LinkedIn Australasian Fluid Mechanics Society group: <http://www.linkedin.com/groups?gid=5068601> Members who want to network and discuss are encouraged to join!

International Symposia being held in Australia in 2015

Two international symposia are being organised for mid-2015 and chaired by Executive Committee members. Please consider attending and/or encouraging your colleagues, both here in Australasia and overseas, to participate. Note that these two symposia occur in adjacent weeks and therefore overseas visitors could take in both if making the (long) trip to Australia.

***The Ninth International Symposium on Turbulence and Shear Flow Phenomena -
TSFP-9 (Chaired by Ivan Marusic)***

This will be held at the University of Melbourne, Victoria, from June 30 to July 3, 2015.

The series of biennial TSFP Symposia is the principal venue for reporting and disseminating recent and ongoing research on turbulence and shear flow phenomena. Previous successful TSFP symposia were held in Santa Barbara, California (1999),

Stockholm, Sweden (2001), Sendai, Japan (2003), Williamsburg, Virginia (2005), Munich, Germany (2007), Seoul, Korea (2009), Ottawa, Canada (2011) and Poitiers, France (2013). This will be the first occasion that the meeting is in the Southern Hemisphere.

The deadline for **abstract submissions** is **15th August 2014**. Please see the symposium website at www.tsfp9.org

***The Third Symposium on Fluid-Structure-Sound Interactions and Control-
FSSIC2015 (Chaired by Tony Lucey)***

This will be held at Curtin University, Western Australia, from July 5 to July 9, 2015.

This series of biennial FSSIC symposia brings together researchers in the rapidly advancing Asia-Pacific region along with their colleagues from the West. The meeting provides a forum for academics, scientists and engineers working in all branches of Fluid-Structure-Sound Interactions and Control and is focused on advances in theory, experiments, and numerical simulations of fluid flow in the areas of:

- Fundamental problems of turbulent flows and aero-acoustics
- Flow-induced vibration and noise
- Aero/Hydro-elasticity
- Active and passive control of turbulence, flow-induced vibration and/or noise
- Applications related to the aerodynamics of road and aerospace vehicles, marine and civil engineering, nuclear reactors and biomedical science.

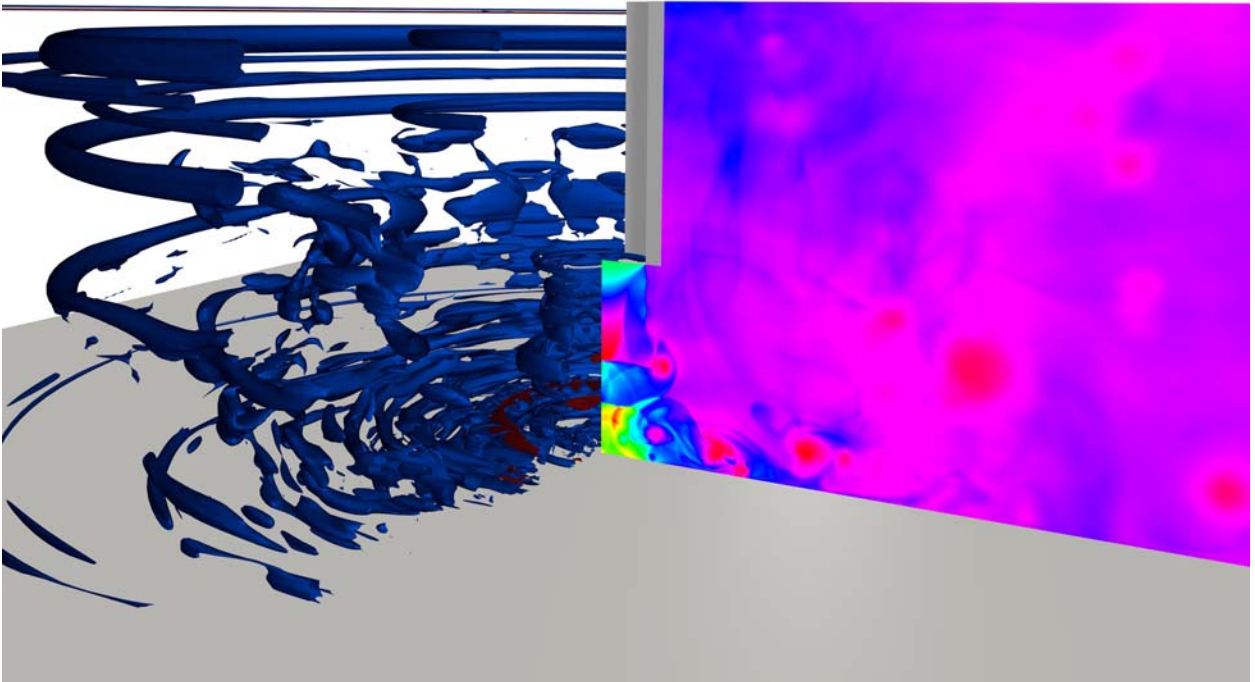
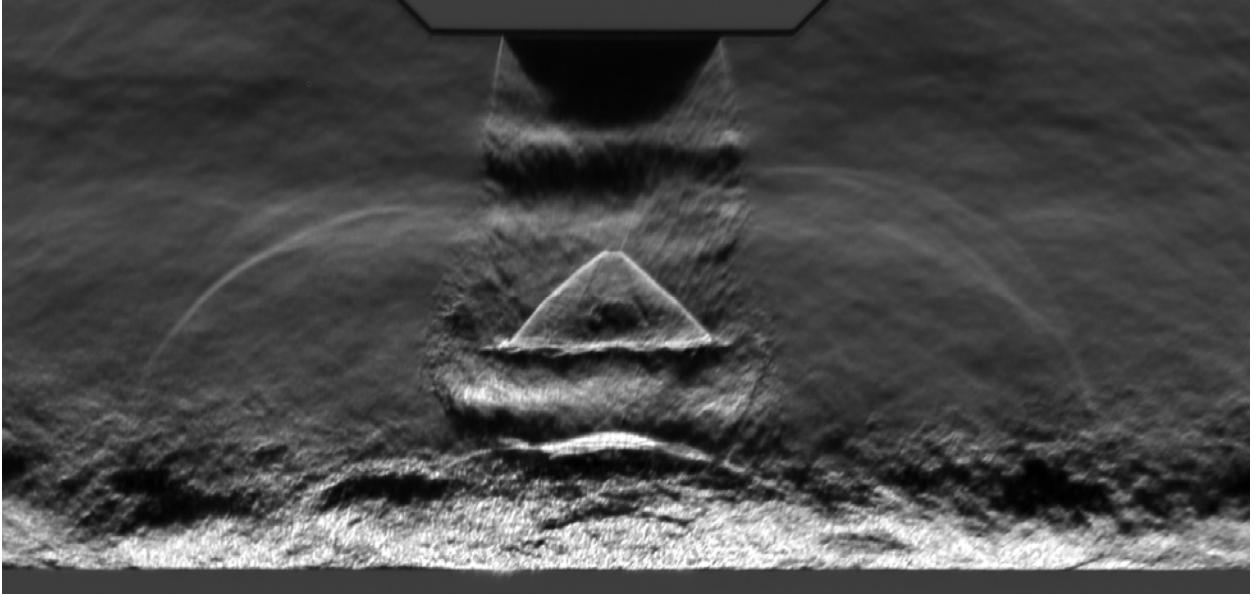
The deadline for **abstract submissions** is **1st October 2014**. Please see the symposium website at <http://fssic.com/2015/index.htm>

ENDPIECE

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

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

This newsletter's fluid-mechanics images are provided by Professor Julio Soria at Monash University. **More submissions are requested for future editions of the newsletter and for the AFMS gallery.**



Schlieren flow visualisation and large eddy simulation (LES) of impinging under-expanded supersonic jet flow at a nozzle pressure ratio of 3.4.

Upper Image: The Schlieren flow visualization by Nick Mason-Smith, Daniel Edgington-Mitchell, Nicolas Buchmann, Damon Honnery and Julio Soria is at a stand-off distance of 2.5 (Mitchell, D. M., Honnery, D. R., & Soria, J. (2012). The visualization of the acoustic feedback loop in impinging underexpanded supersonic jet flows using ultra-high frame rate Schlieren, 15(4), 333–341.). **Lower Image:** The LES by Paul Stegeman, Andrew Ooi and Julio Soria was computed using a compressible in-house developed code at a stand-off distance of 2.0, where the blue iso-surface of the second invariant of the velocity gradient tensor represents vortical structures, the red iso-surface represents negative divergence indicating highly compressible regions which are representative of the location of shocks and the planar contour plot represents the density of the fluid.