

2024 Australia-New Zealand Section of The Combustion Institute Report  
Section Website: <https://protect-au.mimecast.com/s/GGIIICZY1NqiznyxVizY3OS?domain=anz-combustioninstitute.org>  
Section Chair: Assaad Masri

Section officers and board members with titles:

- Officers
  - Professor A.R. Masri, University of Sydney, Chair
  - Professor G.J. Nathan, University of Adelaide, Deputy Chair
  - A/Professor Fatemeh Salehi, Macquarie University, Honorary Treasurer
  - A/Professor Yi Yang, University of Melbourne, Honorary Secretary
- Board Members
  - Professor A.R. Masri, University of Sydney, Chair
  - Professor G.J. Nathan, University of Adelaide, Deputy Chair
  - A/Professor Fatemeh Salehi, Macquarie University, Honorary Treasurer
  - A/Professor Yi Yang, University of Melbourne, Honorary Secretary
  - Professor E. Hawkes, University of New South Wales
  - Professor D.K. Zhang, University of Western Australia
  - Professor A. Klimenko, University of Queensland, co-opted member
  - Professor Dan Zhao, University of Canterbury, NZ, co-opted member

Members of the section:

Active Members	75
Non-Student Members	45
Student Members	30

Has the section revised its by-laws since 2022?

- No

Section meetings and workshops since 2022:

- Section Meetings
  - 26 November 2023
- Workshops and Symposia
  - In 2023, the Australian Combustion Symposium (ACS) was held in Darwin, Northern Territory (26-29 Nov. 2023). This was the first time for this gathering to come to the Top End of Australia. The Symposium was jointly organised by the Charles Darwin University and the Australian and New Zealand Section of the Combustion Institute. The attendance was only in person as the Covid restrictions had been removed allowing everyone once again to meet face-to-face. Around 60 participants joined the meeting, mainly from Australian Universities, with small contingents from New Zealand and from industry.

As it is in the Australian tradition, the Symposium started from a Welcome to Country, delivered by Rochelle Fejo, a Larrakia woman, as Darwin sits on the ancestral lands of Larrakia Nation. As Larrakia are Salt Water people, Rochelle spoke about their progenitor emerging from the sea to give Larrakia their language and the

system of governance to maintain Larrakia's land and sea. Rochelle stressed the connections among protecting the lands and protecting the people and decarbonising the economy.

Professor Scott Bowman AO, Vice-Chancellor of the Charles Darwin University, welcomed the delegates to Charles Darwin University and Professor Suresh Thennadil to the CDU's Energy and Resources Institute. Professor Assaad Masri greeted the delegates on behalf of the Australian and New Zealand Section of the Combustion Institute.

Australia and New Zealand progress assiduously to decarbonise their economies and the technical program of the Symposium reflected this effort, with 16 out of 41 accepted contributions in this area. These contributions dealt with hydrogen and ammonia-based fuels and decarbonised liquid fuels, within the contexts of burners and internal combustion engines. Consistent with these new directions in combustion research, Towards Clean Combustion and Decarbonisation became the theme of the conference and the title of these Proceedings.

The Opening Bilger Lecture was presented by Professor Michael Brear from Melbourne University with the following title: "What does deep greenhouse gas abatement mean for combustion research". The three other Plenary Lectures were presented by Professor Choongik Bae from Korea Institute of Science and Technology on "The future of internal combustion engines using clean fuels", Professor Azhar Uddin on "Catalytic pyrolysis of plastic polymer waste into fuel" and A/Professor Fatemeh Salehi on "Models for hydrogen safety and reliability". Three Thematic Reviews were also presented on: (i) "Recent advances in building fire safety" by Dr Shaun Chan, (ii) Challenges and insights using optical diagnostics in turbulent flames containing green fuels by Dr Matthew Dunn and (iii) "Enhancing ammonia combustion in reciprocating engines: Strategies learned from fundamental experiments" by A/Prof. Yi Yang.

About 40% of the 60 or delegates at the conference were students. The ANZCI section is pleased to have provided travel support for 12 students to attend this conference in Darwin. As Chairman of the ANZ-Section and on behalf of all our membership and delegates, I would like to thank the local Organising Committee in Charles Darwin University for their tireless work and dedication in making the 2023 Australian Combustion Symposium an outstanding success. In particular, our thanks go to Organising Committee which included Professor Bogdan Dlugogorski and his PhD Candidates at CDU - Mr Caleb Ojo, Mr Angel Aguilar-Morones, Ms Ramya Khandika and Mrs Azeb Bekele; Mrs Gopika Prema from the Energy and Resources Institute at CDU who navigated all administrative hurdles; and Professor Shaun Chan from the University of New South Wales for his massive efforts in setting up and maintaining the Symposium website.

Other activities:

- Established in 2020 in recognition of Professor Robert Bilger's seminal contributions to combustion science. The award recognizes outstanding early career researchers who are active members of the Australia and New Zealand Section of the Combustion Institute (ANZ-

CI) and who have made a significant contribution to advance their field of research, which should fall under the broad umbrella of fundamental or applied combustion or combustion-related fields. One Award will be made once every two years only if a sufficiently strong application is received. The awardee will receive AUD\$500 and the presentation of the Award will take place at the biennial Australian Combustion Symposia. The Award is jointly sponsored by a bequest from Professor Bilger and from the Australia and New Zealand Section of the Combustion Institute (ANZ-CI).

The Award Committee has selected Dr Michael Evans from the University of South Australia “for outstanding research in experimental and computational combustion”. Congratulations to Michael. The award was presented during the conference banquet on 28th Nov. 2023.

Awards given by section:

- The Best Student Paper Prizes valued at \$200 each were awarded to:
  - Mr. Callum M. Kennedy (The University of Sydney)
    - Paper FNC3: Title: Influence of flame stability on nanoparticle growth during flame spray pyrolysis
    - Authors: C. M. Kennedy, Y. Zhang, M. J. Dunn and A. R. Masri
  - Mr. Jinxin Yang (UNSW)
    - Paper CCD9: Title: Effect of ignition assistant plug protrusion depth on jet fuel flames in a compression ignition engine
    - Authors: J. Yang, D. Kim, S. Kook, K. S. Kim and C. B. Kweon
- The Terry Wall Best Student Paper Award valued at \$800 for “the best paper on solid fuel combustion” was awarded to:
  - Mr. Caleb O. Ojo (Charles Darwin University)
    - Paper CHF5: Title: Debromination of tris(tribromophenoxy)triazine by pyrolysis with calcium hydroxide
    - Authors: Caleb O. Ojo, Angel A. Aguilar-Morones, Vinuthaa Murthy, Suresh N. Thennadil, Sergei Levchik, Joel Tenney and Bogdan Z. Dlugogorski

Special achievements attained by section members:

- Fellowship of the Combustion Institute 2024 Class of Fellows: Professor Matthew Cleary, The University of Sydney “for significant advances in turbulent combustion modelling, in particular, through the development and application of the multiple mapping conditioning method”

Does your Section plan to organize the international Combustion Institute Summer School (CI-SS)?

- No

If you selected "Yes" which year will it be carried out?

- N/A

Other information you may want to report:

- N/A