9 April 2021 SIA Ref: 21/CFP/0409

SIA 6th Submarine Science, Technology & Engineering Conference [SubSTEC6]
8-10 November 2021
Adelaide Convention Centre

CALL FOR PAPERS

The Committee of the Submarine Institute of Australia (SIA) will convene the 6th Submarine Science, Technology and Engineering Conference (SubSTEC6) in Adelaide, SA from Monday 8 to Wednesday 10 November 2021. The SIA is seeking participation from government agencies, maritime academic research and industry organisations and their representatives.

At any level of submarine operations, having a capability edge is critical to the successful outcome of the mission. The reality is – no foreign designer or builder of submarine systems will offer for export the absolute leading edge of stealth and sensor/weapons systems technology.
It falls, therefore, to Australian academia and industry to be proactive, across the spectrum of STEM, to research, develop, test, evaluate and integrate those leading edges of capability that will provide our submarines and associated unmanned systems with the advantages needed to prevail at all levels of submarine operations.

The theme for the SIA SubSTEC6 is:

'Home Grown Undersea Technology: How Can Australian Academia and Industry Provide a Capability Edge?'

Cost, schedule and technical risk factors for the introduction of new technologies - to offer a capability edge in stealth and sensor/weapons systems for the Attack class [together with Collins Class Life-of-type extension (LOTE)] - are prominent issues. This conference focuses on sovereign academic/industrial support for providing and sustaining submarine capability for Australia's maritime operations, and addresses the potential consequences of failing to do so.

The audience we seek for this conference includes:

- Australian submarine enterprise participants – both industrial and academic
- Australian shipbuilding and repair participants
- Technology companies involved in underwater vehicles, remotely operated and autonomous
- Maritime materials companies involved in submarine construction and sustainment

The SIA is seeking papers with supporting PowerPoint presentations (to be presented in person) for the conference. Written papers will be peer reviewed, compiled as conference proceedings and be made available to delegates. Presentations will be published online with the consent of the author(s).

Submission Timetable:

- Abstracts (NMT 250-300 words) should be submitted by Friday 28th May 2021 as per detailed instructions posted at the SIA Conference Website

Tel: 02 6282 1437
Fax: 02 8076 3262
email: conference@submarineinstitute.com

Submarine Institute of Australia Incorporated
Postal Address: PO Box 241 Deakin West ACT 2600
www.submarineinstitute.com

- Formal acceptance of abstracts (with a link to the Speaker's Portal on WHOVA) and request for submission of paper, will be notified by Wednesday 30th June 2021
- Submission of approved abstract, biography and photograph, to the SIA SubSTEC6 Speaker's Portal on WHOVA, by Monday 19th July 2021
- Full draft papers in MS Word, via SIA SubSTEC6 WHOVA Speaker's portal by Mon. 16 August 2021
- Acceptance of paper (if submitted) and draft conference program notified by Friday 27th September 2021
- Final Papers/presentations submitted using the SIA SubSTEC6 Conference to the Speaker's Portal on WHOVA by Friday 22nd October 2021

Abstracts:

Initial abstracts of proposed papers/presentations in MS Word format (limit 250 words) should be submitted using the form available at https://form.jotform.com/frankowen/substec6-abstracts

Suggested Topics for Conference Papers:

Research and Development

- Test and Evaluation Policy and Management – accelerating the process to accommodate rapid changes in technology
- Scientific research and development strategy and management
- Emerging submarine technologies
    - Advanced battery technologies
    - Optronic systems
    - Acoustic and Non-Acoustic Sensor Technologies (and systems)
    - Submarine deployed autonomous vehicles (including drone C4ISR systems)
    - Nuclear propulsion
    - Air independent propulsion and hydrogen fuel cells
    - New training technologies
- Rapid application of emerging technology for use in the submarine force

Engineering and Design

- Managing design 'margins' for the Attack class weapon/sensor systems
- Australian Defence Organisation policy for research, development, test and evaluation and engineering design reviews
- The future of additive manufacturing. Integrating the ability to print and refurbish parts aboard submarines and the certification/qualification required
- Security
- Risk Management for emerging submarine technologies

Test, Evaluation and Integration

- Opportunities to test /evaluate / integrate new technologies and new capability processes in Collins class before installation in the Future Submarine
- Protecting sovereign intellectual property and sensitive advances in stealth technology, sensors, communications and signal processing when integrating multi-national technology in accordance with Australian Gov. Foreign Influence Transparency legislation
- Expanded capability for network-centric undersea warfare with other manned and unmanned vehicles

Information Management

- Information management relevant to interaction between Australian Academia and industry with Future Submarine design requirements
- Formats for operational development publications or interactive process manuals, for evolving and cutting-edge capabilities

- Quality, cost, schedule, effort and other record keeping practices that will need frequent adaptation as capability edge technology develops
- IP Protection, Transfer of, and Sovereign Development of Sensitive Technology Aspects for Attack class new construction

Training, Education, Recruitment and Retention

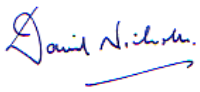
- Academic/industry education on capability development for long-range submarines – Intelligence Gathering, Surveillance and Reconnaissance [ISR]; strategic maritime strike; deterrence
- Recruitment and retention of submarine personnel – uniform and civilian workers in the undersea research development, test & evaluation [RDT&E] and stealth and weapon/sensor systems industries
- New R&D programs for academia and industry in undersea warfare applications
- National and regional engineering and technical skill training development, demand and supply relevant to submarine design, construction, operation and sustainment
- Education programs for submarine systems engineering and systems integration
- Materials science and technology education and workforce development

Workplace and Workforce Management

- Adapting and transitioning Australian Collins class industrial sustainment capability for the Attack class building (and subsequent sustainment) program.
- Long-term cost benefit versus risk management in the context of sovereign capability development
- Experience of integrating sovereign, cutting edge technology, to new construction, from other ship and submarine operators
- Critical issues for adapting sovereign stealth and weapon/sensor capability from international sources
- Developing academic and industrial workforce requirements for the Australian submarine force between Collins Sustainment/LOTE and Future Submarine production

The Institute is seeking conference participation from Australian and overseas academic, government and industry representatives, together with other involved organisations.

The Institute retains the right to accept or reject proposed papers as it considers appropriate. Abstracts or papers that contain overt corporate marketing material will be rejected.
Accepted speakers will be provided a special code permitting complimentary registration for the day of their presentation.



David Nicholls
Executive Director
Submarine Institute of Australia
+61 413 133 391
email: conference@submarineinstitute.com