

RINA WESTERN BULLETIN

Technical Meeting Notice

Topic:

Wave Induced Motions and Loads in Ships & End of Year Catch Up at Mayfair Lane

When: Wednesday, 11th December, 17:30 refreshments, 18:00 start

Where: [Engineers Australia - Auditorium, 712 Murray St, West Perth](#)

&

[Mayfair Lane Pub & Dining Room, 72 Outram St, West Perth](#)

Cost: Free

Registration: Not required for this event.

WA Section RINA Committee

Chairperson: Sammar Abbas
Vice Chair: Kenneth Goh
Secretary: Matthew White
Treasurer: Cheslav Balash
Members: Tim Gourlay
Andy Phillips
Gino Parisella
Ian Milne
Piotr Sujkowski
Nathan Chappell
Syed Zaidi

Division

Representative: Kalevi Savolainen

Presentation:

Wave-Induced Motions and Loads in Ships using the Smoothed Particle Hydrodynamics Technique

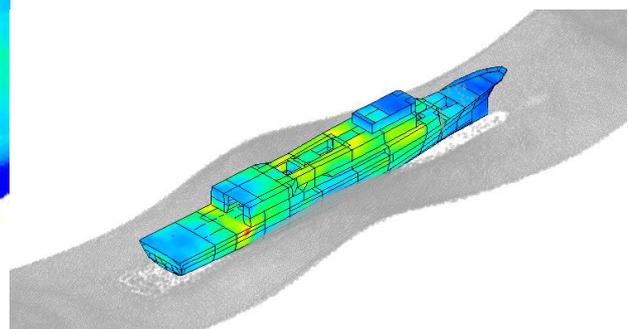
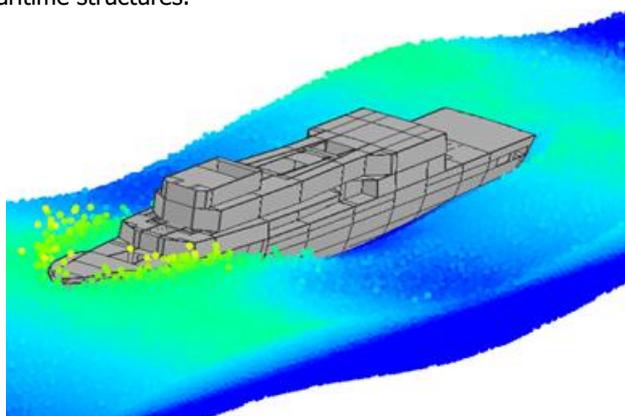
Bruce Cartwright, Research Associate at University of Newcastle / Senior Engineer at Pacific ESI

Abstract

This presentation will outline the development and current results of a technique to visualise and assess the stresses in a ship as it traverses a series of large waves.

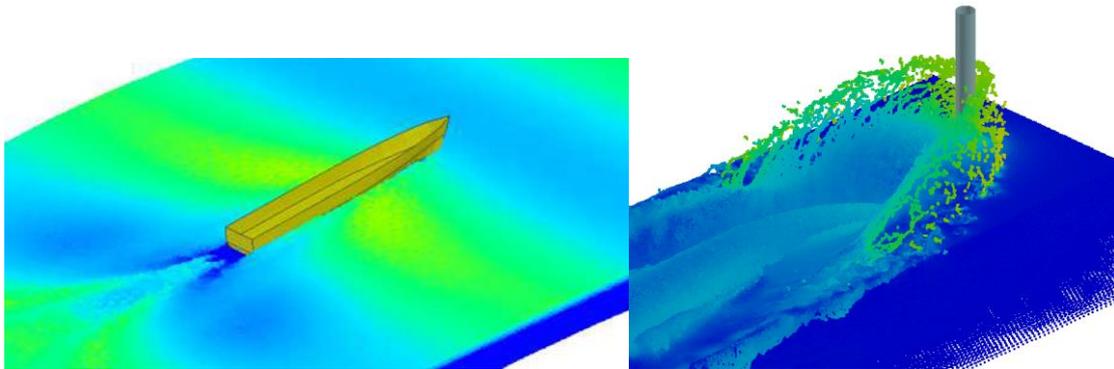
The waves are modelled using the Smoothed Particle Hydrodynamics (SPH) numerical method. SPH is a mesh-free numerical technique that is well-suited to modelling fluid-structure interactions, wave-breaking, turbulence and other complex fluid flow and free-surface phenomena. By including a fully structural finite element model of a ship into the waves, within the one software code, the wave-induced stresses are predicted as a consequence of the inherent fully coupled fluid-structure-interaction (FSI) analysis.

The current development of the technique is enabled through an Australian Research Council funded project titled "Structural Integrity of Maritime Platforms". The aim of the project is to assess structural deterioration through corrosion or cracking on the ability of the ship/platform to resist limit-state loads. Hence a particular use of the tool may be to assess life extension projects, or damaged vessel survivability limits. The tool may also be useful in application to other floating maritime structures.



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Presentation Cont.:



About the Presenter

The presentation will be made by Bruce Cartwright, a Research Associate at University of Newcastle, NSW, and Senior Engineer at Sydney-based consulting firm Pacific Engineering Systems International (Pacific ESI).

Bruce has been working in the field of numerical simulations for over twenty years, starting in areas of automated manufacture for aerospace composite manufacture, bird-strike on commercial aircraft, and later moving to wave propagation and ship motion studies by particle methods. Bruce has studied in Adelaide, London, and Launceston and has held the position of Guest Scientist with the German Aerospace Research Agency (DLR) in Germany through the Australian Cooperative Research Centre programme. Bruce has worked in a broad range of industries from power generation, industrial vibration analysis, composite boat-building, composite aircraft construction, Cooperative Research Centres, and industry-based researcher. Bruce is also a keen sailor and loves messing around in boats. He also plays the trumpet in many groups in his home city of Darwin.

End of Year Catch Up:

After the technical presentation by Bruce, approximately 7:00pm, everyone is invited to join the committee at '[Mayfair Lane](#)', for an end of year catch up (self funded). We hope to see as many of you there with us for our final event of the year.



RINA NEWS & Events:



In 2020, the WA Section of RINA will again be hosting a Knowledge Forum, entitled 'Offshore Marine Technology'.

The Call For Speakers is now closed.

A big thank you to all of those who made submissions for be a presenter, the AOG sub-committee will be reviewing all submissions shortly and successful candidates will be notified.

Full event details, including what will be happening at the RINA booth and special guest attendees, will be communicated in future Western Bulletins however if you would like to know more please don't hesitate to contact the committee at WA@rina.org.uk.

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RINA NEWS & Events

Upcoming Technical Presentations

RINA WA is always looking for interesting technical presentations and people to present them. If you have a topic or know of someone who does, please feel free to contact the WA section and we can look at getting it added to our event calendar.

The current event program can be found below:

Date	Topic #1 / Author	Topic #2 / Author	Venue
11 th Dec 2019	Wave-Induced Motions and Loads in Ships using the Smoothed Particle Hydrodynamics Technique - Bruce Cartwright	End of Year Catch Up	Engineers Australia, West Perth
Feb 2020 TBC	Why yacht rudders fail - Kim Klaka	Some recent developments in dynamic mooring analysis for ships - Tim Gourlay	The Meeting Place, Fremantle
11-13 Mar 2020	AOG 2020		Perth Exhibition Centre

Committee Updates

The WA Committee is seeking expressions of interest for a RINA WA member to replace Kalevi as our division representative as Kalevi has reached his maximum length of service so must hand over the role to a someone new. Further information about the role can be attained by contacting the committee at: WA@rina.org.uk.

Australian Naval Architect

Thank you to all those who responded to our call for news for the ANA, it won't be long until we are asking again so please start thinking and composing your news so we can again have a strong representation from the WA Section.



LinkedIn

Join for event updates and discussion.

[Royal Institution of Naval Architects \(RINA\) – WA Section](#)

YouTube

RINA now has a YouTube channel where presentations from around the world will be made available, click the following link to check out what has already been uploaded:

https://www.youtube.com/channel/UChb1sfHbWfQmG-iwpp_QGJg

RINA WA Section Library

The library is now located at Bentley Systems. Access to the library can be arranged by contacting:

Daniel Veen: Daniel.Veen@bentley.com

James Clarkson: James.Clarkson@bentley.com

Catalogue in Excel format is available at <https://www.rina.org.uk/walibrary>

Continuing Professional Development (CPD) Record

This is a reminder that all Fellows, Members and Associate-Members who are in or seeking active work must maintain and develop their competence and knowledge. This requirement is obligatory. The Institution reserves the right to monitor a member's CPD achievement through inspection of the CPD Record. More information on the CPD and recommendations on the format of the Record can be found on the website:

https://www.rina.org.uk/continuing_professional_development.html