Title:
Investigation into the Effects of Air Entrapment on the Wave-In-Deck Loads on Offshore Structures in Extreme Weather Events

Type:
2018 John Bicknell Scholarship

Value & Duration:
The John Bicknell Scholarship is equivalent to a University of Tasmania Elite scholarship (current RTP rate + $7,500 top-up per annum), with additional operational funds of up to $5,000 per annum) for a term of 3 years (with a possible 6 month extension). The scholarship is available to domestic and international applicants, and the awardee must meet or exceed the criteria of a University of Tasmania Elite award. It is awarded on an annual basis, subject to funds being available.

Closing Date:
11:59pm (AEST), Monday 19 March 2018

The Research Project:
Current oil, gas and marine renewable energy practice requires the installation of large fixed and floating structures offshore. Recent accidents due to extreme weather events have highlighted the risk that improper design of these structures can have on the crew’s safety, the structure’s integrity and the environment. Only a handful of numerical and analytical procedures have so far been developed and validated to analyse such structures in the event that a wave impacts the topside’s deck. Although several studies have been conducted to investigate how design parameters such as air gap, the strength of topside deck and mooring arrangements affect the survivability of these structures, the effects of air content and air entrapment have yet to be systematically investigated. Research suggests that the magnitude and distribution of wave loads in the presence of air cavities may be significantly different from that obtained under the assumption of a structure interacting with water only.

The goal of this project is to fill this gap in knowledge by conducting a PhD investigation into the effects of air content and air entrapment on the survivability of offshore structures subjected to extreme weather events.

Eligibility:
The following eligibility criteria apply to this scholarship:
- The scholarship is open to domestic (Australian and New Zealand) and international candidates;
- The degree must be undertaken on a full-time basis;
- Applicants must already have been awarded a First Class Honours degree or hold equivalent qualifications or relevant and substantial research experience in an appropriate sector;
- Applicants must be able to demonstrate strong research and analytical skills.
Candidates from a variety of disciplinary backgrounds are encouraged to apply. Knowledge and skills that will be ranked highly include:

- Demonstrated understanding of wave mechanics
- Experience with CFD codes is desirable

**Funding:**

This scholarship is being funded by the commemorative John Bicknell Scholarship.

**Application Process:**

Applicants who require more information or are interested in this specific project should first contact the listed Supervisor.

Information and guidance on the application process can be found on the [Apply Now](#) website.

Information about scholarships is available on the [Scholarships](#) webpage.

**More Information:**

Please contact Dr Nagi Abdussamie ([nagia@utas.edu.au](mailto:nagia@utas.edu.au)) for more information.