



## PhD Studentship in the hydroacoustic performance of a novel ship propeller-rudder system

Starting September 2020 for up to 3.5 years

Funding covers UK/EU fees + £15,289 stipend

A funded PhD studentship is available working in the Marine Propulsion Research Laboratory, part of the School of Engineering at Newcastle University.

This project aims to characterise the potential hydro-acoustic benefits of a novel ship propeller-rudder system through numerical methods and extensive experimental research in a large-scale cavitation tunnel.

This research complements a wider effort at Newcastle University, within a consortium of 17 industry partners and funded by the EU Horizon 2020 programme, to develop and prove the application of a novel Energy Saving and Manoeuvring Device (ESMD) for ships, which is known as the Gate Rudder System. This has already been shown to make a significant impact on the reduction of fuel consumption and emissions from ships, especially in coastal regions. The technology could be a revolutionary step in the next generation of ship propulsion systems.

A significant unknown is the underwater acoustics radiation from this device, which could be much lower than conventional systems and is important for improving the environmental impact of ships. The PhD project will contribute new understanding into modelling and predicting this effect for the gate rudder and more widely for ship propulsion systems in general.

Details of the Marine Propulsion Lab and our work can be found at: <http://research.ncl.ac.uk/marinepropulsion/>

The applicant will be trained to a high technological standard and possess skills essential for the growth of the UK economy. In particular, the applicant will develop high technical proficiency in experimental fluid dynamics including cavitation tunnel experiments, hydro-acoustic measurement, computer programming, control and instrumentation.

The applicant is expected to have a 1st class honours degree in naval architecture, marine engineering, mechanical engineering, acoustical engineering, physics, mathematics or a related subject, with a strong background in fluid dynamics. It would be highly desirable for the applicant to have a sound understanding of experimental hydrodynamics and/or acoustics and have relevant experience of collecting and analysing experimental data.

This award is available to **UK/EU** and **international candidates**. Successful international candidates will be required to make up the difference between the UK/EU fees and international fees.

Supervisors: Dr Simon Benson, Dr Serkan Turkmen, Prof Pengfei Liu

Sponsor: The Sasaki Fund

Application closing date: 31st July

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