

An intern will be recruited to design and construct an interactive **wave energy demonstration tank** to show the importance of control in the efficient conversion of wave energy, while highlighting the benefits of renewable sources of energy to diverse audiences, including non-technical public, other technical disciplines, and a range of school children from 4 yrs-18 yrs.

They will be supervised by the COER director, assisted by the COER Lab Manager and co-supervised by two PhD students with complementary interests.

The fully interactive rig will be manual and operated by the 'audience'. The idea is to generate waves and adjust the controller dial to maximise the power output. The audience will see a power output display and an LED light will light up as power is produced. The rig will demonstrate, more than the accompanying presentations and posters the potential for wave power and the necessity within wave systems of control.

COER have significant experience with public engagement activities (4-6 in-person events per year attended by ~600 young people). We have found that using interactive demonstration wave tanks brings the message to life and helps the audience to grasp concepts that might be new to them.

The rig accompanied by videos, presentations and posters, will be used for public engagement activities; specifically utilising established and well-publicised science, engineering and 'green' events such as Science Week, Engineers Week, Green Day, Maynooth University open days and secondary school visits, to target primary school children and older secondary school children. The internship position will be advertised widely, generating interest from university students nationwide. We believe that offering a modest stipend to the successful intern applicant will generate interest from good quality candidates and will encourage maximum sharing across social media.



We would also hope to generate attention from local media during the events. The demonstration system will also be used at national (and where practical, international) conferences, such as the Irish Signals and Systems Conference to demonstrate the potential, and importance of control in making wave (and renewable energy, in general) economic.

The intern will gain substantial knowledge and experience of control from a wave energy perspective – potentially leading to further studies in control and creating a future member of the control community.

The secondary school audience will benefit from a hands-on experience with wave energy and will develop an understanding of control theory in small to medium sized groups. Within this group, we hope to target young women (although not exclusively), to encourage them to consider taking up STEM subjects in university.

The primary school children will be introduced to wave energy and control theory in a fun, interactive manner, where they can make their own waves, turn the controller dial and perceive an outcome.