Design and construction of a demonstrator wave energy converter

Master thesis proposal at the Marine Offshore Renewable Energy Lab

Department of Mechanical and Aerospace Engineering

Politecnico di Torino

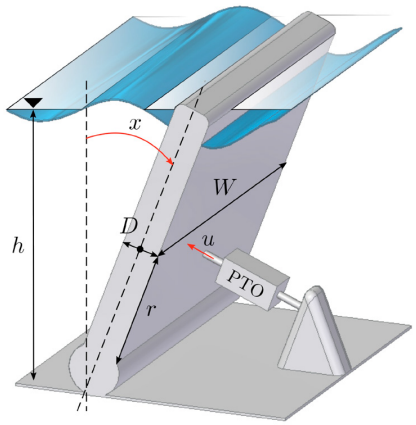
Recommended profile:
Mechanical engineering

Topics involved:
Wave energy conversion, hydrodynamics, prototype design, control

Proposal description

Wave energy converters are devices designed to harvest the energy from ocean waves, ultimately transforming the reciprocating motion of the seas into usable electricity. Different concepts exist, which are based on diverse conversion principles. Being a relatively new field within renewable energy conversion, outreach and dissemination activities are fundamental: Awareness of the existence and types of technology for wave energy conversion available, helps in paving the way towards acceptance and widespread knowledge of this novel technology.

This project aims at the design and construction of a small scale prototype of a wave energy conversion system for demonstration purposes. The scale will be about 1:40 of an actual system, yet with the mechanics/electronics required to fully control the device and demonstrate the technology. The device will include a corresponding generator, capable both of showcasing energy absorption and reactive power flow via control technology. The prototype will be showcased and used for outreach activities at the European Researchers Night.



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