

Marine energy harvesting using a gyroscopic-pendulum device



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Description:

Renewable energy application is essential in forefront islands (i.e. Natuna Islands in Indonesia) as the access to electricity in such areas might be limited. Marine energy can be a solution to fulfil the electricity demand. This type of energy is environmentally friendly, available around the clock and can be installed in nearly every coastal area.

In this project a new concept of a marine energy device is explored in the form of an easily deployable electricity generator in a floating module. The device is called a “gyroscopic-pendulum”. The device consists of a rotating pendulum that is fixed in the horizontal direction. The pendulum is connected to a controlled spinning disk located at the floater’s centre of rotation. The spinning disk and the torque originating from the pendulum weight together create a gyroscopic effect causing the pendulum to rotate. The floater motions are used as driving forces to rotate the pendulum as well. The electricity is harvested from the rotational motion of the pendulum.

Goal:

The goal of this research is to understand and evaluate the feasibility of the proposed device to produce electricity by means of a combined theoretical and experimental approach.

Sponsors:



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