Announces the Ph.D. Dissertation Defense of

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for the degree of Doctor of Philosophy (Ph.D.)

“Modeling, Implementation and Control of a CVT Based PTO for a Small Scale MHK-Turbine in Low Flow Speed Current”

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Ocean and Mechanical Engineering

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ABSTRACT OF DISSERTATION
Modeling, Implementation and Control of a CVT Based PTO for a Small Scale MHK-Turbine in Low Flow Speed Operation
Modeling, simulation, bench and field testing of a power takeoff (PTO) equipped with a continuously-variable transmission (CVT) for a small marine hydrokinetic (MHK) undershot waterwheel (USWW) deployed from a floating platform is described. The objective is to develop and control a PTO for the optimal conversion of the flow energy to electric power, charging batteries onboard the platform. This work shows the feasibility of utilizing the CVT’s variable gear ratio to maintain the turbine’s optimal tip speed ratio (TSR) and vary the generator speed, increasing the efficiency of the PTO. The concept was successfully demonstrated, with the system satisfactorily capturing and converting water flow energy into electricity.

BIOGRAPHICAL SKETCH
Recife, Brazil
B.S., Universidade Federal de Pernambuco, Recife, Brazil, 2016
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& QUALIFYING EXAMINATION
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Published Papers: