VIETNAM NATIONAL UNIVERSITY - HCMC **SOCIALIST REPUBLIC OF VIETNAM**

Ho Chi Minh City University of Technology **Independence-Freedom-Happiness**

INFORMATION OF THE DISSERTATION

Dissertation's title*:* Research on the method of acquiring ocean wave energy by linear absorption system

Major: Mechanical Engineering

Major code: 62520103

PhD candidate: Ha Phuong

Science advisors: **1.** Assoc. Prof. Tran Doan Son

2. Dr. Truong Quoc Thanh

Institution: Ho Chi Minh City University of Technology, Vietnam National University - Ho Chi Minh City

Objective of dissertation

The goal of the thesis is to study the exploitation of ocean wave energy to ensure the increasing energy demand in Vietnam, specifically as follows:

Currently, the study and evaluation of the efficiency of recovering near-shore wave energy in Vietnam's seas to serve as a basis for the development of wave energy systems are in fact essential and a particular supply of electricity for sea vehicles.

Through general research as well as actual survey of Vietnam's ocean wave energy and relevant works, the author has built the following goals:

- Goal: *Research on solutions to supply energy for near-shore fishing equipment and vehicles using the linear wave energy absorption system.*
- Objective: *Research on the potential of exploiting ocean wave energy in Vietnam and solutions to improving the efficiency of ocean wave energy exploitation using linear absorption system.*

Contribution of dissertation

In the general context, the world is facing the depletion of fossil energy resources such as oil, gas, coal, ... and it is necessary to protect the living environment for sustainable development. Researching and evaluating the potential and capcity as well as moving forward to efficient exploitation of renewable energy and ocean wave energy are really necessary to meet the national strategic development goals. The thesis has the following contributions:

- Research and build a system to exploit ocean wave energy with a linear absorption system suitable to Vietnam sea wave characteristics and evaluate the efficiency of the system's exploitation.
- Set up a dynamic model of the linear energy collection system, thereby served as a basis for simulating and experimentally determining the recovery efficiency of the near-shore wave characteristics of Vietnam.
- Build a wave generating channel for the experiment with wave parameters (amplitude, frequency) that can be changed automatically in accordance with the actual wave characteristics.
- The thesis proposes solutions to improving the efficiency of exploiting ocean wave energy by constructing the constraints for the kinetic equations of the buoy system, thereby calculating float parameters to increase efficiency of sea wave energy recovery.

The results of the thesis contribute to the development of further studies on the exploitation of ocean wave energy in particular, and renewable energy in general.

Science advisors **PhD Candidate**

Assoc. Prof. Tran Doan Son Dr. Truong Quoc Thanh Ha Phuong