Description of Funded Research Projects
1st Call for H.F.R.I. Research Projects
to support Post-Doctoral Researchers

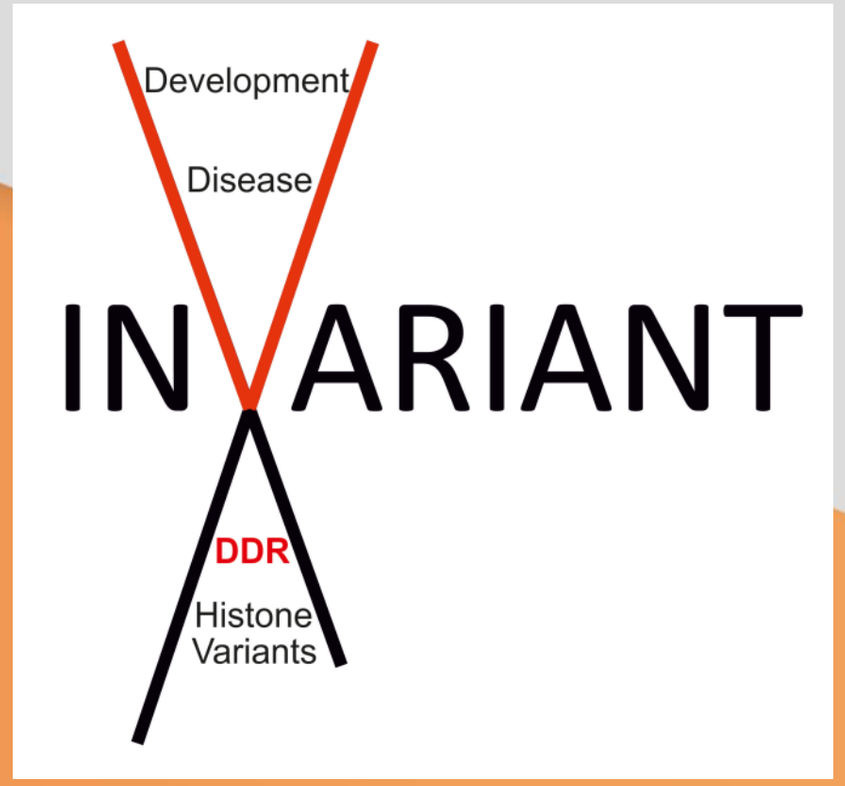
H.F.R.I.
Hellenic Foundation for
Research & Innovation

Research Project Title:

Floating wetlands for marine water pollution control in the Mediterranean Sea (ATLANTIS)

Principal Investigator:

Vasileios Takavakoglou



Popular Title:

Floating wetlands for marine water pollution control in the Mediterranean Sea

Scientific Field:

Environment and Energy

Host Institution:

Aristotle University of Thessaloniki

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The Mediterranean Sea is considered to be a high risk area of water pollution. The sea is a major oil transportation route and up to one million tons of crude oil is discharged annually from accidental spills, illegal bunkering, cleaning practices, and inadequate port facilities. Furthermore, it has a dense network of maritime transport with more than 450 ports, hosts more than 20.000 fish-farms and receives considerable amounts of pollutants from urban, industrial and agricultural activities.

Floating Wetlands (FW) are the latest development of constructed wetlands, as eco-friendly systems for pollution control. In marine and coastal environment, FW represent a challenging and promising solution since: (a) they are able to withstand sea water level fluctuations and waves, and (b) they have lower cost of operation and maintenance comparing to conventional water treatment methods.

Aim of ATLANTIS project is the operational development and evaluation of Mediterranean Floating Wetlands as an environmental friendly and eco-innovative solution for marine pollution control in Mediterranean, with focus on petroleum hydrocarbons.

Project implementation includes: (1) Screening of water pollution problems in Mediterranean ports and development of seasonal water quality maps in the test site, (2) Lab scale experiments for the study of marine pollution control mechanisms in FW and the development of a customized system for Mediterranean, (3) Establishment and operational evaluation of a full scale system in a Mediterranean Port.

The project ATLANTIS following a multi-scientific approach, is characterized by several innovative elements in the scientific fields of constructed wetlands and sustainable water resources management. These include the research on water quality improvement mechanisms of FW as affected by salinity, the treatment of petroleum hydrocarbons in marine environment with FW, the development of a system adapted in Mediterranean conditions, and the full scale evaluation of floating wetlands in operational environment..

The project is expected to have a significant socio-economic impact, since the development of an environmentally friendly system of marine pollution control will provide an operational solution to several public and private users (ports, marines, fish-farms, coastal hotels, Local and Regional Authorities etc) with multiple associated benefits for local economies and societies. These include the fulfillment of environmental obligations and requirements in marine/coastal enterprises and facilities, the lowering of expenses for water pollution control (investment and operation), the health and safety of employees and citizens and the overall contribution to the targets of Blue Growth Strategy and of ‘‘EUROPE 2020’’ Strategy for Smart, Inclusive and Sustainable Development.

To me, H.F.R.I. funding would mean...

Opening the horizons for the realization of my research interests; providing a solid basis for research and professional career development; promoting applied research to address real problems for the benefit of society.

The Principal Investigator,
Vasileios Takavakoglou

Funding

Amount: **110,000 €**

Duration: **30 months**

Foundation: **H.F.R.I.**

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Hellenic Foundation for Research & Innovation

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