

Designação do Projeto	Efficient Simulation and Computation for Health, Sea and Industry (ESC4SHI)
Código do Projeto	PTDC/MAT-APL/28118/2017 + LISBOA-01-0145-FEDER-028118 + POCI-01-0145-FEDER-028118
Objetivo Principal	OT 1 - Reforçar a investigação, o desenvolvimento tecnológico e a inovação
Região de Intervenção	Norte, Área Metropolitana de Lisboa, Centro
Entidade Beneficiária	Universidade do Minho + FCIências.ID – Associação para a Investigação e Desenvolvimento de Ciências, Universidade de Coimbra
Data de Aprovação	13-09-2018
Data de Início	14-12-2018
Data de Conclusão	13-12-2022
Custo Total Elegível	239 095,62€
Apoio Financeiro da União Europeia	FEDER – 192 960,03 €
Apoio Financeiro Público Nacional/Regional	OE – 46 135,59 €

Objetivos

In this project, we develop new Key Enabling Technologies (KET) involving applied mathematics and computer sciences and simulation tools for applications strongly inserted in the national and regional RIS3. We first detail the plan for the KET and the different stages of developments, and, in a second part, we present the plan for the applications.

Atividades

1. Very high-order for curved domains
2. Higher-order space-time Discontinuous Galerkin finite element methods
3. Efficient ADI-like method for many-core system



4. Toward a consistent SPH method
5. Energetically efficient and optimized polymer processes
6. Assessment and simulation of portuary defence and coastal protection
7. Modelling electromagnetic waves in human retina

Resultados Esperados / Atingidos

The project is composed of two main parts. The first part concerns the development of Key enabling Technologies (KET) in numerical simulations. We shall develop efficient digital tools taking advantage of the up-to-date hardware technology. Namely, we aim at designing new numerical methods and carry out innovative implementations for vectorial and many-core computers. We intend to use all the available computational resources still preserving a low energy consumption.

