



Joint PhD position opening on:

“Spontaneous Symmetry Breaking in the context of quantum and classical optics”

Context of the PhD project:

Symmetry is a powerful concept that has guided many generations of scientists in the search for a better understanding of the inner workings of Nature. Typically, the stationary states of a physical system inherit the symmetries of the laws that govern the system, i.e., the symmetries of the Hamiltonian or Lagrangian. Interestingly, a physical system is not always constrained by the Hamiltonian symmetries, as a symmetry can be *spontaneously broken*. The spontaneous symmetry breaking mechanism is ubiquitous in physics and plays a crucial role in many phenomena, e.g., in ferroelectricity, ferromagnetism or in superconductivity. The objective of this project is to study the phenomenon of spontaneous symmetry breaking in the context of quantum and classical optics [1].

The PhD project will allow the candidate to acquire solid basis in electromagnetism, quantum physics and advanced numerical simulation.

The PhD position will tentatively start in October 2020 and will take place part at the Instituto Superior Técnico (Lisbon - Portugal) in the group of Prof. Mario Silveirinha (**web**), and part at the University of Montpellier (Montpellier – France) in the group of Prof. Mauro Antezza (**web**).

For further details, please contact Prof. M. Silveirinha (mario.silveirinha@co.it.pt) and Prof. M. Antezza (mauro.antezza@umontpellier.fr) and provide your CV.

[1] M. G. Silveirinha, “Spontaneous Rotational Symmetry Breaking in a Kramers Two-Level System”, Phys. Rev. B, 100, 165146, 2019.