

2. CASUS Annual Workshop

“Fusing Artificial Intelligence & Simulation”

“Kinetic plasma simulations at the exascale realm and AI”



Luís O. Silva is Professor of Physics at Instituto Superior Tecnico, University of Lisbon. He obtained his degrees (Lic. 1992, PhD 1997 and Habilitation 2005) from IST, and was a post-doctoral researcher at the University of California Los Angeles from 1997 to 2001. His scientific contributions are focused in the in silico exploration of the interaction of intense beams of particles and lasers with plasmas, combining theoretical physics with massively parallel numerical simulations, in laboratory and astrophysical scenarios. He has been awarded with two ERC Advanced grants and he is a fellow of the American Physical Society, the European Physical Society, the European Academy of Sciences, and Corresponding Member of the Lisbon Academy of Sciences.

Date: will be announced soon

Time: will be announced soon

Location: livestream link follows

Abstract:

I will review the fundamentals of kinetic particle simulations based on the particle-in-cell methodology and some of the most important advances and challenges at the exascale realm. I will also review and highlight some of the recent progress on the interplay between plasma simulations and artificial intelligence/machine learning approaches, with examples in plasma based accelerators and fundamental plasma physics. A very personal view on future directions on this interplay will also be discussed.