Contribution ID: **82** Type: **not specified**

A Tutorial on Particle in Cell simulation of Laser Wakefield Acceleration

Thursday 21 March 2024 16:40 (20 minutes)

Laser Wakefield Acceleration (LWFA) stands as a promising particle acceleration mechanism leading to accelerating gradients orders of magnitude higher than those of conventional methods. Detailed understanding of the nonlinear laser-plasma interaction mechanisms of LWFA at the kinetic scale requires performing Particle in Cell (PIC) simulations.
Although PIC codes exist since several decades, presently there is not much hands-on free online material available to teach how to properly use them specifically to simulate plasma acceleration. To start bridging this gap, a tutorial on Laser Wakefield Acceleration is presented and made available online, to guide future practitioners of LWFA modelling towards setting up and analysing their plasma acceleration simulations through structured and progressive exercises, assisted by explanations and postprocessing scripts.

Available for oral presentation in a session

Yes

Primary author: MASSIMO, Francesco (LPGP, CNRS, Université Paris Saclay)

Co-authors: BECK, Arnaud (LLR, CNRS - École polytechnique); PROUVEUR, Charles (Maison de la Simulation, CNRS); PÉREZ, Frédéric (LULI, CNRS - École polytechnique); BOUCHARD, Guillaume (CEA, DAM, DIF); LOBET, Mathieu (Maison de la Simulation, CEA); GRECH, Mickael (LULI, CNRS - École polytechnique); ABRAMKINA, Olga (Maison de la Simulation, IDRIS); MARINI, Samuel; VINCI, Tommaso (LULI, CNRS - École polytechnique)

Session Classification: Poster Session