

Welcome to WG3: Theory & simulations

Conveners

Andrea Rossi

Maxence Thévenet

➤ Session 1: Monday 16:30 – 18:25, Aula Bonaparte 2

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|---------------|---|
| 16:25 – 16:45 | Energy-conserving theory of plasma blowout – <i>Anton Golovanov (Weizmann Institute)</i> |
| 16:45 – 17:05 | Accurate electron beam phase-space theory for ionization injection schemes – <i>Paolo Tomassini (ELI-NP)</i> |
| 17:05 – 17:25 | A Lattice Boltzmann approach to plasma simulation in the context of wakefield acceleration – <i>Daniele Simeoni (INFN)</i> |
| 17:25 – 17:45 | Optimised density tailoring for dephasing mitigation in laser wakefield accelerators – <i>Matthew Streeter (Queen's Univ. Belfast)</i> |
| 17:45 – 18:05 | Start-to-end simulations of HOFI waveguides – <i>Mathis Mewes (DESY)</i> |
| | <i>Nathan Cook had to cancel his contribution</i> |
| 18:05 – 18:25 | Transverse envelope dynamics of beam slices in a uniform charged ellipsoidal model of the plasma bubble regime – <i>Abdul Mannan (INFN)</i> |

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➤ Session 2: Wednesday 16:30 – 18:25, Aula Bonaparte 2

16:25 – 16:45	Affordable simulations of collider-relevant plasma-based accelerators (and more) with mesh refinement – <i>Maxence Thévenet (DESY)</i>
16:45 – 17:05	Exascale and ML Models for Accelerator Simulations– <i>Axel Huebl (LBNL)</i>
17:05 – 17:25	DiWaCAT: An Efficient Field Solver and Beam Tracker for Dielectric Wakefield Acceleration Applications – <i>Toby Overton (STFC)</i>
17:25 – 17:45	Latest algorithmic advances in the Exascale Particle-In-Cell code WarpX – <i>Jean-Luc Vay (LBNL)</i>
17:45 – 18:05	Beam Reproducibility in a Density Downramp Plasma Wakefield Accelerator – <i>Sarah Schröder (DESY)</i>
18:05 – 18:25	Recent progress in the modeling of laser wakefield acceleration – <i>Francesco Massimo (LPGP)</i>
18:25 – 18:45	Unravelling ultrashort dynamics of plasma-based accelerators -- leveraging synthetic diagnostics to match PIC simulations with experimental data – <i>Alexander Debus (HZDR)</i>

➤ We'll monitor the time closely

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➤ Poster sessions 19:00 – 20:30, Aula Maria Luisa

Monday

328 Wakefield regeneration in a plasma accelerator

John Farmer

277 Very High Energy Electrons with high charge and moderate energy spread from laser- wakefield acceleration

Federico Avella

Tuesday

381 LASY: an open-source Python library for easy interfacing of laser pulses between experiments and simulations

Maxence Thévenet

308 Phase Control of Nonlinear Breit-Wheeler Pair Creation

Bernardo Barbosa

215 Transverse instability in HALHF plasma stages

Jian Bin Ben Chen

Wednesday

172 Lattice Boltzmann Method applications: a characterization of thermal effects in plasma waves

Gianmarco Parise

282 Fast laser field reconstruction method based on a Gerchberg-Saxton algorithm with modes decomposition

Ioannou Moulanier

193 A plasma-based acceleration method for heavier particles

Chiara Badiali

169 The Plasma Injector for PETRA IV: Conceptual Design Report

Alberto Martinez de la Ossa