

Session Program

21-27 Sept 2025



7th European Advanced Accelerator Conference

PS4: Theory and simulations

Hotel Hermitage, La Biodola Bay, Isola d'Elba, Italy
La Biodola Bay - 57037 Portoferraio Isola d'Elba (Li) - Italy

Monday 22 September

16:20

PS4: Theory and simulations: HEP & staging

Session | **Location:** Hotel Hermitage, Sala Elena | **Conveners:** Maxence Thévenet, Stefano Romeo

16:20–16:40

Nonlinear interaction-point dynamics for plasma-accelerated beams

Speaker

Thomas Wilson

16:40–17:00

All-optic In-plasma Staging of Laser-Wakefield Accelerators Using Density Tailoring

Speaker

Xingjian Hui

17:00–17:20

Design and challenges of the witness electron beam injection for AWAKE Run2c

Speaker

Eleonora Belli

17:20–17:40

Finding tolerances for the future diagnostics of AWAKE Run 2c

Speaker

Mariana Moreira

17:40–18:00

Beyond Dephasing: Scalable laser-plasma accelerators via Traveling-wave electron acceleration

Speaker

Alexander Debus

18:00–18:45

Discussion & Closing Remarks

18:45

Tuesday 23 September

16:20

PS4: Theory and simulations: Methods

Session | **Location:** Hotel Hermitage, Sala Elena | **Conveners:** Stefano Romeo, Maxence Thévenet

16:20–16:40

ABEL: A Start-to-End Simulation and Optimisation Framework for Plasma-Based Accelerators and Colliders

Speaker

Dr Jian Bin Ben Chen

16:40–17:00

Open boundary conditions for the time-averaged ponderomotive approximation in Particle-In-Cell codes

Speaker

Arnaud Beck

17:00–17:20

Mainstreaming Start-to-End Realistic Simulations in Plasma Accelerator Research

Speaker

Maxence Thevenet

17:20–17:40

Modeling laser-wakefield accelerators using the time-averaged ponderomotive approximation in a Lorentz boosted frame

Speaker

Francesco Massimo

17:40–18:00

Galilean Electromagnetic (GEM) PIC code for highly efficient simulations of LWFA and PWFA

Speaker

Prof. Alexander Pukhov

18:00–18:20

Recent progress on QuickPIC and QPAD

Speaker

Weiming An

18:20–18:45

Discussion & Closing Remarks

18:45

Wednesday 24 September

16:20

PS4: Theory and simulations: Beams & applications

Session | **Location:** Hotel Hermitage, Sala Elena | **Conveners:** Maxence Thévenet, Stefano Romeo

16:20–16:40

Unlocking High-Dimensional Parameter Spaces: Bayesian Optimization in Beam-Driven Plasma Accelerators

Speaker

Alessio Del Dotto

16:40–17:00

Microbunching Instability Studies: a Semi-Analytical Insights for EuPRAXIA@SPARC_LAB

Speaker

Giovanni Campri

17:00–17:20

Acceleration-Induced Self-Interactions of Ultra-Short Electron Bunches

Speaker

Ryan Mcguigan

17:20–17:40

Parametric mapping of the efficiency-instability relation in plasma-wakefield accelerators

Speaker

Ole Gunnar Finnerud

17:40–18:00

Synthetic Radiation Diagnostic in Hybrid LPWFA

Speaker

Finn-Ole Carstens

18:00–18:45

Discussion & Closing Remarks

18:45

Thursday 25 September

16:20

PS4: Theory and simulations: LPA

Session | **Location:** Hotel Hermitage, Sala Elena | **Conveners:** Stefano Romeo, Maxence Thévenet

16:20–16:40

On an analytical optimization of plasma density profiles for downramp injection in LWFA

Speaker

Gaetano Fiore

16:40–17:00

Algorithmic optimization of ionization injection in laser wakefield acceleration

Speaker

Michael Backhouse

17:00–17:20

Physics of transverse dynamics in a laser-plasma accelerator

Speaker

Laury Batista

17:20–17:40

Towards improved control of laser-wakefield accelerators with multidimensional parameter scans

Speaker

Jessica Tiebel

17:40–18:00

Start-to-End Simulations for the Extreme Photonics Application Centre

Speaker

Oliver Finlay

18:00–18:20

Exascale Plasma Accelerator Simulations with PIconGPU

Speaker

Finn-Ole Carstens

18:20–18:45

Discussion & Closing Remarks

18:45