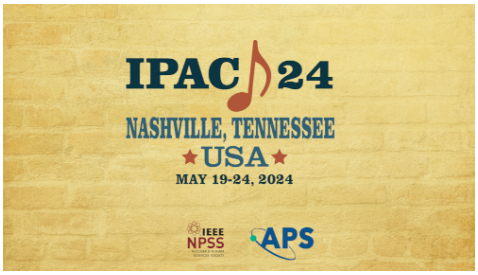

Contribution ID: **1561** Contribution code: **MOPG32** Type: **Poster Presentation**

Plasma accelerator based free electron laser program at ELI-beamlines

Monday, 20 May 2024 16:00 (2 hours)

The plasma accelerator-based Free Electron Laser research program at ELI-ERIC (ELI-Beamlines, Czech Republic) intends to utilize the unique qualities of plasma accelerators to build FELs with remarkable brightness, coherence, and pulse length. The program is based on the novel high-power, high-repetition-rate laser system, which is under preparation at ELI-Beamlines. The program entails expanding the LUIS experimental setup to test and validate the performance of the laser-plasma accelerator-based extreme ultra-violet (EUV) FEL, integrating a high-power laser, plasma source, and electron beam transport line with relevant diagnostics to create a comprehensive test bed for the development of the EuPRAXIA LPA-based FEL. The plasma accelerator-based FEL development program at ELI-Beamlines represents an innovative effort to expand the capabilities of FEL technology and open new possibilities for scientific research and industrial applications. In the frame of this report, we provide an overview of the relevant developments at ELI-ERIC (ELI-Beamlines) as well as the main challenges of this program.

Footnotes

Funding Agency

Paper preparation format

Region represented

Europe

Primary author: WHITEHEAD, Alex (Extreme Light Infrastructure)

Co-authors: Dr MOLODOZHENTSEV, Alexander (Extreme Light Infrastructure); MAI, Dong Du (ELI Beamlines Czech Republic); GREEN, Tyler (ELI Beamlines Czech Republic)

Presenter: WHITEHEAD, Alex (Extreme Light Infrastructure)

Session Classification: Monday Poster Session

Track Classification: MC2: Photon Sources and Electron Accelerators: MC2.A06 Free Electron Lasers