



Contribution ID: 2802 Contribution code: SUPM078

Type: **Poster Presentation**

Study of the Transfer and Matching Line for a PWFA-driven FEL

Sunday, 7 May 2023 16:00 (2 hours)

The development of compact accelerator facilities providing high-brightness beams is one of the most challenging tasks in the field of next-generation compact and cost affordable particle accelerators. Recent results obtained at SPARC_LAB show evidence of the FEL laser by a compact (3 cm) particle beam plasma accelerator. This work is carried out in the framework of the SPARC_LAB activities concerning the R&D on particle-driven plasma wakefield accelerators for the realization of new compact plasma based facilities i.e. EuPRAXIA@SPARC_LAB. The work here presented is a theoretical study demonstrating a possible scheme concerning the implementation of an innovative array of discharge capillaries, operating as active-plasma lenses, and one collimator to build an unconventional transport line for bunches outgoing from plasma accelerating module. Taking advantage of the symmetric and linear focusing provided by an active-plasma lens, the witness is captured and transported along the array without affecting its quality at the exit of the plasma module. At the same time the driver, being over-focused in the same array, can be removed by means of a collimator.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: IOVINE, Pasqualina (Sapienza University of Rome)

Co-authors: BACCI, Alberto (Istituto Nazionale di Fisica Nucleare); DEL DOTTO, Alessio (Istituto Nazionale di Fisica Nucleare); BIAGIONI, Angelo (Istituto Nazionale di Fisica Nucleare); GIRIBONO, Anna (Istituto Nazionale di Fisica Nucleare); VACCAREZZA, Cristina (Istituto Nazionale di Fisica Nucleare); CHIADRONI, Enrica (Sapienza University of Rome); CRINCOLI, Lucio (Istituto Nazionale di Fisica Nucleare); ROSSETTI CONTI, Marcello (Istituto Nazionale di Fisica Nucleare); FERRARIO, Massimo (Istituto Nazionale di Fisica Nucleare); POMPILLI, Riccardo (Istituto Nazionale di Fisica Nucleare); ROMEO, Stefano (Istituto Nazionale di Fisica Nucleare)

Presenter: IOVINE, Pasqualina (Sapienza University of Rome)

Session Classification: Student Poster Session