
Contribution ID: **394** Contribution code: **WEP054** Type: **Poster Presentation**

# Latest Progress on Plasma Wakefield Acceleration at FACET-II

*Wednesday 13 August 2025 16:00 (2 hours)*

Plasma Wakefield Acceleration (PWFA) can provide 10's of GeV/m acceleration gradients, providing a novel path towards efficient and compact future colliders and high brightness free electron lasers. At the Facility for Advanced Accelerator Experimental Tests II (FACET-II) at SLAC, we are undertaking experiments in PWFA using a 10 GeV electron beam configured as a drive and witness pair. We will share our progress towards the ultimate goal of doubling the energy of the 10 GeV witness bunch by PWFA, with high efficiency and while preserving beam quality. Our latest results demonstrate multi-GeV acceleration of the witness bunch, with energy gains exceeding 5 GeV and sub-percent energy spread, using a 40 cm long lithium vapor plasma source. Additionally, we have achieved near-complete charge capture of the witness bunch and are actively working to minimize emittance growth through careful control of the transverse properties of the bunches.

## Please consider my poster for contributed oral presentation

Yes

## Would you like to submit this poster in student poster session on Sunday (August 10th)

No

## Footnotes

## Funding Agency

FACET-II is supported in part by the U.S. Department of Energy under contract number DE-AC02-76SF00515.

## I have read and accept the Privacy Policy Statement

Yes

**Author:** STOREY, Douglas (SLAC National Accelerator Laboratory)

**Co-author:** -, E300 Collaboration (SLAC National Accelerator Laboratory; University of California, Los Angeles; University of Colorado Boulder; Laboratoire d'Optique Appliquée; Institut Polytechnique de Paris; University of Oslo)

**Presenter:** STOREY, Douglas (SLAC National Accelerator Laboratory)

**Session Classification:** WEP: Wednesday Poster Session

**Track Classification:** MC3 - Novel Particle Sources, Acceleration Techniques, and their Applications