Contribution ID: **108** Type: **Student Poster**

# Commissioning of BELLA PW second beamline with high-power plasma mirrors and a look towards laser-plasma accelerator staging

*Tuesday, November 8, 2022 5:00 PM (2h 30m)*

Since its installation in 2012, the petawatt (PW) facility at the Berkeley Lab Laser Accelerator (BELLA) Center primarily focused on the optimization of single-stage GeV-energy laser-plasma accelerators (LPAs). Recently, the PW facility completed an upgrade to install a new second beamline (2BL) and experimental target chamber. The installation of the second beamline enables BELLA PW to simultaneously deliver two high intensity laser pulses to the target area and provides the capability for newly accessible experiments including staging of two GeV-energy laser-plasma accelerators, guiding in optically ionized plasma channels, and two-color ionization injection. This poster will cover the commissioning process for the second beamline, the use of plasma mirrors for beam delivery at high power in the second beamline, and the plans for staging experiments on BELLA PW using the second beamline.

## Acknowledgments

This work was supported by the U.S. Department of Energy Office of Science, Offices of High Energy Physics under Contract No. DE-AC02–05CH11231.

**Primary author:** STACKHOUSE, Joshua (UC Berkeley)

**Co-authors:** GONSALVES, Anthony (LBNL); TURNER, Marlene (LBNL); PICKSLEY, Alexander (LBNL); Dr NAKAMURA, Kei (Lawrence Berkeley National Lab); Dr OBST-HUEBL, Lieselotte (Lawrence Berkeley National Lab); FAN-CHIANG, Liona (UC Berkeley); BENEDETTI, Carlo (LBNL); SCHROEDER, Carl (LBNL); VAN TILBORG, Jeroen (LBNL); GEDDES, Cameron (Lawrence Berkeley National Laboratory); Dr ESAREY, Eric (Lawrence Berkeley National Laboratory)

**Presenter:** STACKHOUSE, Joshua (UC Berkeley)

**Session Classification:** Poster Session and Reception

**Track Classification:** Poster Session: WG1 Poster: Laser-Plasma Wakefield Acceleration