

## **O5.201 Petawatt laser guiding and electron beam acceleration to 7.8 GeV in a laser heated capillary discharge waveguide at BELLA**

*Friday, 12 July 2019 11:40 (15 minutes)*

See the full abstract here <http://ocs.ciemat.es/EPS2019ABS/pdf/O5.201.pdf>

We present modeling and experimental results concerning the guiding of relativistically intense laser pulses with peak power of 0.85 PW over a distance of 15 diffraction lengths. Laser guiding was achieved by increasing the focusing strength of a capillary discharge waveguide using laser inverse Bremsstrahlung heating. This allowed for the production of electron beams in a laser-plasma accelerator with quasi-monoenergetic peaks up to 7.8 GeV, double the energy that was previously demonstrated. Charge was 5 pC at 7.8 GeV and up to 62 pC in 6 GeV peaks, and typical beam divergence was 0.2 mrad.

(\*) Now at Deutsches Elektronen-Synchrotron DESY, D-22607 Hamburg, Germany

**pppo**

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**Session Classification:** BPIF

**Track Classification:** BPIF