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e-SYLOS: a kHz laser wakefield driven beamline for radiobiological and imaging applications at ELI-ALPS

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The ELI Attosecond Light Pulse Source (ELI-ALPS) facility is the Hungarian pillar of the Extreme Light Infrastructure (ELI) project aimed at high-repetition rate, ultrafast science driven by ultrashort few-cycle laser pulses. ELI-ALPS aims to provide ultrashort light pulses from the THz to the x-ray regime as well as high-energy particle sources, all at high repetition rates for developers and end-users. This talk presents an overview of the development of the e-SYLOS beamline; a laser wakefield driven kilohertz electron beamline at ELI-ALPS aimed at producing ultrafast electron bunches and x-rays. Currently transitioning to the implementation phase, the beamline takes advantage of the Single Cycle Laser (SYLOS); a 1 kHz, 37 mJ, 6.4 fs NOPCPA laser system. Once completed, the beamline will be well suited to experiments in radiobiology, x-ray imaging and attosecond science as well as high repetition-rate wakefield development.

Primary authors: SHALLOO, Rob (Imperial College London); NAJMUDIN, Zufikar (Imperial College London); HAFZ, Nasr (ELI-ALPS); Dr LI, Song (ELI-ALPS); PAPP, Daniel (ELI-ALPS); Dr KAMPERIDIS, Christos (ELI-ALPS, HU)

Presenter: SHALLOO, Rob (Imperial College London)

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