

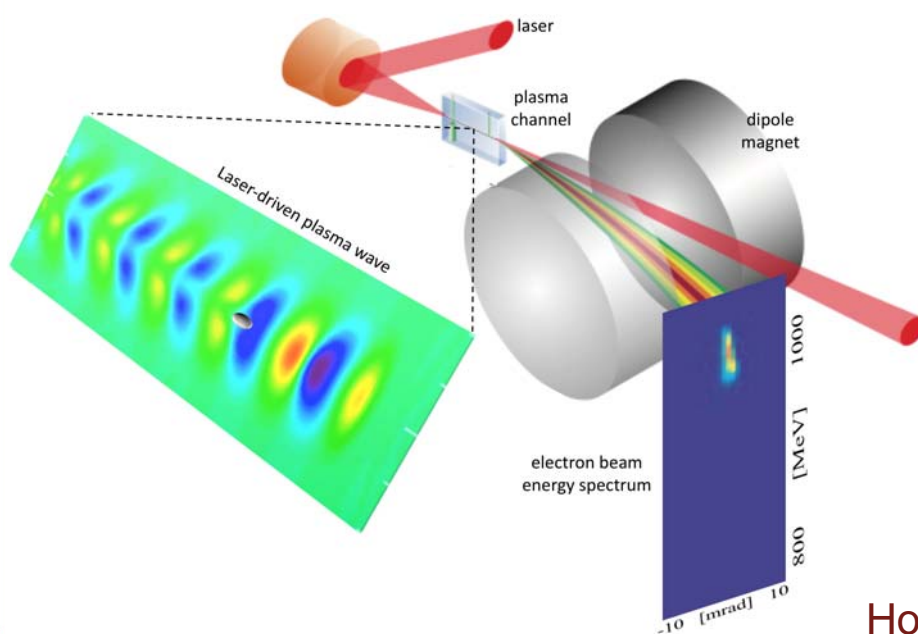
7th February 2014 - 14:00
CFEL, Building 99 - seminar room I-III

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Laser-Plasma Accelerators

The radiation pressure from intense, high-power, laser pulses can drive large amplitude electron plasma waves with accelerating fields several orders of magnitude greater than conventional accelerators, providing an extremely compact method of generating energetic particle beams. Laser-plasma accelerators (LPAs) have demonstrated acceleration of electron beams to several GeV in cm-scale plasmas. In this talk, I will discuss the basic physics of laser-driven plasma acceleration, including the path to higher beam energy and brightness. I will present recent experimental progress at the BELLA (BERkeley Lab Laser Accelerator) Facility using a high-rep-rate (Hz), PW laser system, and I will discuss the potential applications of LPA beams.



Owing to the fs durations and high-peak brightness, LPA beams can be applied to generate ultra-short pulse radiation. FELs are one of the most promising applications of LPAs, and I will describe the path to realization of an LPA-driven FEL. I will also discuss the potential of LPA technology to be applied to future linear colliders.

Host: Andreas Maier, UHH-ASG