

K 6: Kurzpulslaseranwendungen

Zeit: Dienstag 14:30–15:15

Raum: 6E

Hauptvortrag

K 6.1 Di 14:30 6E

Rescheduled talk: High-Intensity Laser Ion Acceleration —
 •JÖRG SCHREIBER — LMU München

This talk has been scheduled twice by accident. The talk will be given as part of the Symposium “Relativistische Laserplasmen”. See SYRL 2.3.

K 6.2 Di 15:00 6E

Acceleration of quasimonoenergetic, ultrashort (<5 fs) electron bunches via interaction of single relativistic laser pulses with gas jets — •BERNHARD HIDDING¹, STEFAN KARSCH², LASZLO VEISZ², KARL SCHMID², MICHAEL GEISSLER^{2,3}, HEINER SCHWOERER⁴, GEORG PRETZLER¹, and ROLAND SAUERBREY⁵ — ¹Heinrich-Heine-Universität Düsseldorf, Germany — ²Max-Planck-Institut für Quantenoptik, Garching, Germany — ³Queen’s University of Belfast, UK — ⁴Friedrich-Schiller-Universität Jena, Germany — ⁵Forschungszentrum Rossendorf, Germany

Since 2004, several experiments have succeeded in producing multi-MeV quasimonoenergetic electron bunches from laser-plasma-interaction. The so-called bubble-acceleration principle is in particular intriguing because it requires the interaction of only one single relativistic laser pulse with a gas jet. So far no experiments dealt with parameters that enabled entering the bubble regime right from the beginning of the interaction. At the Jena JETI laser, we made use of promoted self-modulation in order to overcome the necessary bubble power threshold, producing quasimonoenergetic electrons with bunch durations of only a few fs. Different measurement techniques will be presented. In Düsseldorf, we currently install laser systems with laser pulse durations <20 fs, which can fulfill the requirements of the bubble regime directly without needing self-modulation, which can be a helpful process but is believed to evoke large shot-to-shot-variations. The electron bunch properties that can be expected as the result of the aimed laser parameters will be discussed.