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Laser-Plasma Acceleration of Electrons for Radiobiology and Radiation Sources

Thursday, October 9, 2014 3:00 PM (30 minutes)

Ultraintense lasers are now delivering high peak power beyond the PW level, with pulse duration as short as 20 fs. Laser-driven acceleration in mm-sized plasmas using multi-TW laser systems is now established for the generation of high energy electron bunches. Depending on the acceleration regime, electrons can be used directly for applications such as radiobiology and radiotherapy or for secondary radiation sources. Inverse-Compton scattering of these electrons with intense laser pulses is being considered for the generation of high energy γ -rays and for the investigation of fundamental electrodynamic processes. We discuss the basic mechanisms and describe the latest experimental results.

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Session Classification: S5: Novel Sources: FEL/Laser/Plasma Channels