

# Laser accelerated relativistic electrons in high energy density research

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In view of current and future experiments, various methods of laser electron acceleration in plasma are discussed. In particular, the efficient generation of relativistic electrons with energies of tens of MeV in a plasma of near critical electron density has been demonstrated at relativistic laser intensities. Good agreement between the experimental data and the results of the 3D-PIC simulations was obtained.

The characteristics of accelerated electrons are analyzed depending on the laser and target parameters for picosecond and femtosecond laser pulses [1]. Bright sources of hard radiation and particles generated by intense currents of accelerated relativistic electrons are discussed for diagnostics in high energy density research [2, 3].

Acknowledgments: The reported study was funded by the Russian Foundation for Basic Research and ROSATOM, research project No. 20-21-00150.

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