

Seminar



Institutul de Fizică Atomică

PULSE and IMPULSE of ELI

(Extreme Light Infrastructure)

II. Experimental Aspects of Electron Pulses Accelerated by High-Intensity Polaritonic Laser Beams

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Some experimental aspects related to the polaritonic model of the electron pulses accelerated by high-intensity laser beams are analyzed. In particular, the relation between phase velocity and group velocity is discussed, and the relevance of the group velocity for the energy that could be gained by electrons is emphasized. The structure, size, velocity, duration, polarization and the contrast of the laser pulse in connection with the plasma medium is also analyzed, stressing, for instance, several experimental facts related to these parameters which are in good agreement with the polaritonic model. Various experimental data are analyzed by means of this model, and a critical discussion is given as regards the relevance of the model in this context. Similarly, the extension of these lines of thought to the so-called collective acceleration by laser pulses is discussed.

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