

Seminar



Institutul de Fizică Atomică

PULSE and IMPULSE of ELI

(Extreme Light Infrastructure)

IV. Electron Pulse Coupling with Dielectric Targets by Cruise Effect for High-Intensity External Field Controlled Lasing

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New arguments are presented in favor of the polaritonic model for the transport of the electrons, synchronously with a plasma assisted high-power laser pulse. This kind of transport is in agreement with electron beam acceleration by bubble model, and an experimental validation is proposed. Moreover, this transport could improve the coupling with different targets, and particularly with a fiber target. A short review will be done of the electron transport on the dielectric fiber surface by the Cruise Effect and the extension of this effect to laser accelerated electron beams is analyzed. For very thin fiber the coupling between cruising electrons and the fiber material are performed mainly by virtual photons and the geometrical characteristic could be of interest for gamma ray laser studies (<http://handle.dtic.mil/100.2/ADA398179>), for channeling studies and also for a new kind of directional hard X ray sources.

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