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Electron Acceleration by a Bichromatic Chirped Laser Pulse in Underdense Plasmas

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An effective theory of laser-plasma based particle acceleration is presented. Here we treated the plasma as a continuous medium with an index of refraction n_m in which a single electron propagates. We studied the properties of the electron motion due to the Lorentz force and the relativistic equations of motion were numerically solved and analysed. We compared our results to PIC simulations and experimental data. The bichromatic contribution gives an approximate ten percent enhancement in the final electron energy.

Primary author: Mr POCSAI, András (Wigner Research Center of the Hungarian Academy of Sciences)

Co-author: Prof. VARRÓ, Sándor (Wigner Research of the Hungarian Academy of Sciences)

Presenter: Mr POCSAI, András (Wigner Research Center of the Hungarian Academy of Sciences)

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