Contribution ID: **217** Type: **talk**

The Dynamics of Electron Bunches at Enhancement of Laser Plasma Wakefield Acceleration by Beam Plasma Wakefield Acceleration

Thursday, 17 September 2015 18:00 (20 minutes)

We present the results of fully relativistic electromagnetic PIC simulation, which was performed by a modified version of the UMKA2D3V-code. The laser pulse at a wavelength λ = 0.8 μm enters the computation region which is filled with uniform plasma from the left boundary and is incident normally on the plasma. The plasma density n0 = 1.8·1019 cm-3. The longitudinal and transverse dimensions of the laser pulse are selected to be shorter than the plasma wavelength. Full length at half maximum of the laser pulse is 2λ and full width at half maximum is 8λ. The laser pulse intensity I = 5.3·1019 W/cm2. The main aim of this work is the research of the electron bunches dynamics accelerated by wakefield bubbles excited by laser pulse in blowout regime. It has been shown that with time the Laser Plasma Wakefield Acceleration (LPWA) Scheme changes into combined LPWA Scheme and Beam Plasma Wakefield Acceleration Scheme. It leads to additional acceleration of 3rd self-consistently formed short electron bunch by combination of laser pulse, 1st and 2nd self-consistently formed short electron bunches. 2nd electron bunch after deceleration is self-cleaned due to defocusing by radial fields of bubble.

Primary author: Ms SVYSTUN, Olena (National Science Center Kharkov Institute of Physics and Technology)

Presenter: Ms SVYSTUN, Olena (National Science Center Kharkov Institute of Physics and Technology)

Session Classification: WG6 - Theory and simulations

Track Classification: WG6 - Theory and simulations