Contribution ID : **25** Type : **Talk (remote)**

Advanced Quasistatic Approximation

Thursday, 13 April 2023 15:20 (20)

The quasistatic approximation (QSA) is an efficient method of simulating laser- and beam-driven plasma wakefield acceleration, but it becomes imprecise if some plasma particles make long longitudinal excursions in a strongly nonlinear wave, or if waves with non-zero group velocity are present in the plasma, or the plasma density gradients are sharp, or the beam shape changes rapidly. We present an extension to QSA that is free from many of its limitations and retains its main advantages of speed and reduced dimensionality. The new approach takes into account the exchange of information between adjacent plasma layers. We introduce the physical model, describe its numerical implementation, and compare the simulation results with available analytical solutions and other codes.

Speaker's Name

Konstantin Lotov

Speaker's Title

Prof.

Speaker's Gender

Man

Speaker's Pronouns

Speaker's Preferred name (if any)

Primary author(s) : LOTOV, Konstantin (Budker INP); Dr TUEV, Petr (Budker INP); Mr SPITSYN, Roman (Budker INP)

Presenter(s) : LOTOV, Konstantin (Budker INP)

Session Classification : Room 2 (Conferece Room)

Track Classification : WG4: Innovative accelerator techniques