

## Laser ion acceleration in an overdense plasma with relativistic non-Maxwellian electrons

A. Kargarain

*Department of Physics and Institute for Plasma Research, Kharazmi University, Tehran, Iran*

The ion acceleration in a foil plasma irradiated by a high intensity laser has been studied by applying a relativistic electromagnetic Particle-In-Cell code. The considered plasma contains non-Maxwellian electrons. The presence of the initial non-Maxwellian electrons drastically affect the excited charge-separation electric field, ion velocity, and the ion expansion (see Fig. 1). Moreover, the results show that the presence of the initially non-Maxwellian electrons impress on the ion energy spectrum different from the initially Maxwellian distribution.

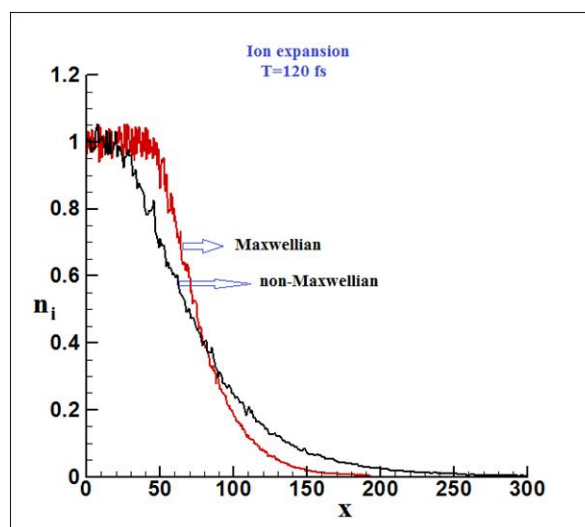


Figure. 1: The ion density for plasma with initial Maxwellian (red plot) and non-Maxwellian (black plot) electron distribution at time  $\tau = 120$ .