Laser produced high density plasmas

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Abstract

Recently applications of high energy lasers to the study of high energy density sciences such as laser fusion, X-ray spectroscopy of stellar objects, high speed plasma jets of prostars and so on are widely carried out. In this presentation brief introduction to the experiments at some laser facilities are given, followed by comparison of numerical simulations of those plasmas. Simulations of plasmas of the experiments at LULI (France) and LLNL (USA) for electron transport in 1D compressed plasmas, those at RAL (UK) for electron transport and radiography in 2D compressed plasmas, those at ILE (Japan) for photoionization of Si plasma by X-rays from 3D compressed plasmas, and those at PALS (Czech Republic) for plasma acceleration in a narrow channel would be discussed.