

Energy loss of low energy ions in plasmas @ HIRFL

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High energy density physics (HEDP) is an interesting interdisciplinary field and it plays the important roles in astrophysics and controlled fusion science. The HEDM generated by intense heavy ions beam has the properties of large volume, uniform state, any material and high reproducibility, which provides a unique experimental solution for HEDP research in lab. In China, a new high intensity heavy ions accelerator facility (HIAF) is under construction and it will provide a very powerful ions beam to access the HEDM.

Energy deposition of ions in plasmas is a key topic to generate the HEDM and a high precision knowledge is called for. Based on the HIRFL (Heavy Ions Research Facility at Lanzhou), an experimental setup is built to carry out the research of low energy ions –plasmas interaction. The energy losses of protons and Helium ions in hydrogen plasmas are measured and the theoretical models are compared experimentally, where some new effects are figured out.

In this conference, we will introduce the recent results of low energy ions in plasmas, and the status of HIAF will be given too.

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