

# **ACCELERATOR Driven High Energy Density Science**

## **-Status of HED Physics at FAIR and GSI-**

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High intensity particle accelerators like FAIR at GSI Darmstadt and the proposed HIAF facility in China are a new tools to induce High Energy Density states in matter. Physics (HEDP) with intense heavy ion beams as a tool to induce extreme states of matter. The development of this field connects intimately to the advances in accelerator physics and technology. We will cover the generation of intense heavy ion beams starting from the ion source and follow the acceleration process and transport to the target. Intensity limitations and potential solutions to overcome these limitations are discussed. This is exemplified by citing examples from existing machines at the Gesellschaft für Schwerionenforschung (GSI-Darmstadt), the Institute of Theoretical and Experimental Physics in Moscow (ITEP-Moscow), and the Institute of Modern Physics (IMP-Lanzhou). Facilities under construction like the FAIR facility in Darmstadt and the High Intensity Accelerator Facility (HIAF), proposed for China will be included. Developments elsewhere are covered where it seems appropriate along with a report of recent results and achievements.

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