

Invitation to the

INTERNATIONAL EMMI Workshop on Plasma Physics at FAIR

In conjunction with a collaboration meeting of the HED Plasma Physics Collaboration (HEDgeHOB) at FAIR/GSI

Date: July 11th -13th, 2016 at FAIR/GSI Helmholtzzentrum Darmstadt

Workshop web-site: <https://indico.gsi.de/conferenceDisplay.py?confId=2164>

The Plasma Physics program at FAIR, one essential part of the FAIR project, has been originally formulated more than a decade ago. Since the founding of our collaborations (HEDgeHOB and WDM), we have experienced several changes in the FAIR scope and planning, to which our collaborations had to adapt. It now appears that we will see a start of FAIR for High Energy Density Physics experiments with already absolutely exciting beam parameters starting in 2022 and a steady increase in later years.

Now, a more detailed time-line of the project is asking for contributions to several phases, including a "phase 0" preparatory phase using the up-graded GSI facilities and starting in 2018, and a "first day" usage of the FAIR facilities immediately following the commissioning of the SIS 100 accelerator and the first experimental caves. In addition, the rapid progress of the plasma physics research worldwide makes it necessary to redefine the aims of the full experimental program. Here the field of Warm Dense Matter, which is already at the center of the Plasma Physics program at FAIR, has seen a tremendous growth and enhancement, due to the alternative efforts using anvil cells, high-power lasers, and the up-coming FEL facilities. New and further developed diagnostic schemes have evolved. In total this field has become of utmost interest to basic theory and applications also to the physics community outside of Plasma Physics. We therefore have to reevaluate our scientific priorities according to the expected experimental conditions.

Any contributions within this broadened horizon will be appreciated.

We encourage collaboration members and interested researchers to discuss with us:

- Properties of Warm Dense Matter: theory, experiments and advanced diagnostic techniques
- Plasma Physics related to high power accelerators
- Beam Plasma Interaction, atomic processes in plasma, laser plasma interaction
- HED facilities worldwide
- Related subjects like material research or biophysics at the interface with plasmaphysics

Collaboration meeting:

Towards the end of the meeting, a collaboration meeting will be held.

The goals of the collaboration meeting are:

- To update the science case of HEDgeHOB;
- To determine one or a few "first" flagship capabilities of the FAIR facility right after its commissioning;
- To work on a staged prioritized timeline for the experiments and related theory;
- To discuss the technical development progress and related issues.

You are cordially invited to attend the workshop

Dieter HH Hoffmann and Vincent Bagnoud (co-chairmen of the workshop)