

Editorial

At the start of this new issue I want to take the opportunity to thank the contributing authors as well as the editorial team for their efforts to produce this issue despite many other obligations they had to bear and which were related to the FAIR future project of GSI.

The success of the scientific work of the plasma physics community related to High Energy Density Physics with Intense Ion and Laser Beams at GSI is indicated by a large number of publications that were already published during the first part of this year. Among them four publications in Physical Review Letters (Fuchs, 2005; Zioutas, 2005; Tahir, 2005 and 2005a). The importance of these articles was emphasized by editorial articles in science, nature and the Physics News Updates. It is obvious that intense beams from accelerators will become a major tool for precision experiments to study Warm Dense Matter properties and at an earlier stage the thermophysical properties of beam heated matter.

The status of the PHELIX project is described in detail in the section covering the experimental program. The group was able to acquire considerable more manpower during this year and there is realistic hope that the first laser generated particle beams will be available soon, since the main amplifier is almost ready to operate now. Additional support to the PHELIX program comes through a virtual institute that was recently approved for funding by the Helmholtz Gemeinschaft. Its mission is to study the generation of intense particle beams by ultra-intense lasers. Here the specific interest of GSI is the question if these intense laser generated particle beams are suitable for further acceleration in conventional accelerator structures. A three year program has been launched and is carried by GSI, TU-Darmstadt, Jena- University, TU-Munich and the Weizmann Institute of Science. The integration of the Weizmann Institute is the result of a long standing and successful collaboration within the German Israel Program (DIP).

Laboratory astrophysics and planetary science is envisioned as one of the future experimental programs at the new FAIR-plasma physics facility. Already four articles in this issue deal with theoretical and experimental aspects of this field (Tahir, p. 27; Nettelmann, p. 35; Kuster; p. 51 and Koresheva, p. 52), and in future it will definitely become even more pronounced, when very intense to ultra-intense ion and laser beams to produce astrophysical relevant extreme states of matter under laboratory conditions are available at GSI.

Finally the appearance of table of contents, page numbering and author index has changed in this issue. Comments by the readers, if this is convenient or the old version is preferred, are welcome.

Darmstadt, June 2005

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