

## Experiments towards HIF at FAIR

*Monday, 13 August 2012 09:15 (20 minutes)*

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The next generation of heavy ion drivers - the Facility for Antiproton and Ion Research in Europe, FAIR, will provide worldwide unique accelerator and experimental facilities allowing for a large variety of unprecedented fore-front research in extreme state of matter physics and applied science. Indeed, it is the largest basic research project on the roadmap of the European Strategy Forum of Research Infrastructures (ESFRI), and it is cornerstone of the European Research Area.

This presentation outlines the current status of the Facility for Antiproton and Ion Research. The scope and sequence of the construction will be described. Also the physics program of FAIR with emphasis on plasma physics issues with intense heavy ion beams will be presented as well as the results of experimental activities on heavy ion accelerator facilities in Europe, providing intense beams capable of generating extreme state of matter by isochoric energy deposition regime.

Considerations are focused on new experiments by using large synchrotron rings which appear to be efficient tools for investigations into the physics of high-brightness beams generation and high energy density research. Development of new diagnostic methods for high resolution parameters measurements of dense, non-ideal plasmas is discussed.

Reference: [www.fair-center.eu](http://www.fair-center.eu)

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**Session Classification:** Program overviews, Chairs: Bill Herrmannsfeldt and Grant Logan