

Status and opportunities of FLAIR

Eberhard Widmann

Stefan Meyer Institute, Austrian Academy of Sciences, Boltzmannngasse 3, 1090 Vienna, Austria

The future accelerator facility for beams of ions and antiprotons at Darmstadt [1] will provide antiproton beams of intensities that are two orders of magnitude higher than currently available. Within the foreseen scheme, antiprotons can be decelerated to 30 MeV. The low-energy antiproton community has formed a users group to make use of this opportunity to create a next-generation low-energy antiproton facility called FLAIR. A letter of intent [2] has been submitted for a new facility that goes far beyond the current Antiproton Decelerator at CERN by providing cooled antiproton beams using two storage rings of 300 keV and 20 keV minimum energy. The availability of low-emittance beams at these low energies will greatly enhance the density of antiprotons stopped in dilute gases or ion traps for precision spectroscopy. FLAIR will also provide slow extracted (i.e. continuous) beams of antiprotons, thereby enabling nuclear and particle physics type experiments which need coincidence techniques. Using internal targets in the storage rings, atomic collision experiments with ultra-low energy antiprotons and ions can be performed for the first time.

The letter of intent for FLAIR as well as the technical proposal [3] have been positively evaluated by the APPA PAC and the STI committee of FAIR, and FLAIR has been added to the core part of FAIR. If funding can be secured, FLAIR will provide antiproton and ion beams from the year 2014. After the official start of the FAIR project in November 2007, the efforts towards realizing FLAIR have to be enforced. The current status of the project and the necessary steps towards its realization will be reviewed.

References

- [1] An International Accelerator Facility for Beams of Ions and Antiprotons, Baseline Technical Report (2006), GSI . Available from <http://www.gsi.de/fair/index.html/>.
- [2] FLAIR letter of intent (2004), available from <http://www.oeaw.ac.at/smi/flair/>.
- [3] FLAIR Technical Proposal (2005), available from <http://www.oeaw.ac.at/smi/flair/>.