

## **PAC recommendations on SPARC**

The TP merges LOI 21 (SPARC) and 18 (Laser Cooling), as requested by the APPA-PAC. The TP contains all the information requested.

The following four experimental programmes are considered to be specially important and likely to have a high scientific impact. They make use of the unique facilities provided by the FAIR project. They are therefore given the highest priority in SPARC.

- Laser experiments at SIS 100/300 (cooling and spectroscopy) (1.1 – 1.2). They require an interaction zone at SIS 300 and a laser laboratory nearby in building 3.
- Atomic Physics at NESR is the core of the SPARC program. It requires space around the straight sections (internal target, 3.2), laser ports and detector for hyperfine structure measurements, and laboratory space shared with EXL. The cold electron target (second electron cooler, 3.1) is mandatory and might ask for a sur-elevation of the NESR building.
- HITRAP (4.3). Requires FLAIR building and beam-line from NESR.
- High-energy atomic cave (2.1): channeling experiments (2.2). Pair production is very interesting but requires more work (2.3). Most constraints for this cave come from BIOMAT.

The proposed experiments for the low-energy cave (4.2) follow-up on existing experiments, but reach the nonperturbative regime because of the use of slow, high-Z, highly charged ions. These experiments have lower priority, but a general-purpose low-energy cave is indispensable.

The Thompson back-scattering experiment (3.11c), which may require a beam-line from PHELIX and does require the electron collider, is considered more speculative at this time.



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FAIR Working Group on Scientific and Technical  
Issues (FAIR-STI)

Chair: Dr. Horst Wenninger

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April 12, 2005

*Re: Technical Proposal SPARC to the FAIR Project*

Dear Colleague,

The March 14 - 17 STI Working Group Meeting, chaired by Dr. Sydney Gales and held jointly with its Program Advisory Committees (PAC) and the Technical Advisory Committee (TAC), was devoted to a first round of discussions and evaluations of Technical Proposals and Technical Reports, submitted for the FAIR Project.

In this letter we provide you with preliminary information concerning the status of this evaluation process. The final recommendations of the STI Working Group will be based on the evaluations within the various PACs and the TAC. We therefore enclose with this letter a copy of the section of the PAC and/or TAC report that concerns your proposal. However, the final recommendations from the STI - on overall project definition and on the details of each proposal - require a number of additional steps as outlined in the following.

As most of you are already aware, these next steps will be carried out by STI under a new chair. Dr. Gales, who has taken up new responsibilities in France, expressed his wish to step down as chair of STI. I have been appointed the new chair of STI by the International Steering Committee of FAIR (FAIR-ISC). I was invited to participate in the STI meeting and could thus attend the reports of the advisory committees' chairs.

As the next step, the STI Working Group decided to schedule a meeting from May 19 - 20 at GSI, just prior to the FAIR-ISC meeting at DESY on May 22. By then, and with a deadline of mid-August 2005 for final completion, the FAIR project management and coordination groups together with the TAC and the three PACs are asked to establish a cost book of facility components and to scrutinize the layout of each detector and experiment proposal to fit into its financial framework. You will receive correspondingly the STI recommendations related to your experiment proposal, as well as the respective cost frame.

I would like to take this opportunity to thank you on behalf of everyone involved in the project and on behalf the STI for the enormous effort and work put into proposal development and preparation. The contributions of each of you have been instrumental in defining an exciting, rich and diversified experimental program for FAIR. The STI also counts on your cooperation for the important (and difficult) next steps in developing the details as well as overall project definition within the given boundaries.

Sincerely yours,

Horst Wenninger  
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Enclosure