

October 3rd, 2004

SPARC COLLABORATION MEETING; October 29-30, 2004, GSI, Darmstadt

Dear Colleagues,

during the last weeks (hopefully), you have received the invitation from the organizers of the SPARC project for joining the workshop at GSI at the end of October. In this project, two 'theoretical working groups' have been defined, beside of the main experimental groups, in order to coordinate and to encourage also the theoretical and computational support for the future GSI facility. Although these groups were announced originally to concern i) the atomic structure and QED effects of high-Z ions and ii) their collisional dynamics, they are open also to other interests and research work on atomic heavy ion physics beyond of these topics.

The meeting in October provides a very first opportunity to get in contact with each other and to discuss the main research lines, at present and as suggested for the near future. To start this discussion, therefore, we plan at Friday afternoon (October 29th, 2004) an informal group meeting with those of you who join the workshop. The intention of this meeting is that all participating groups briefly introduce themselves and report for a few minutes about their current research interests in this field. The exact time and place of the meeting will be announced at the workshop.

To organize this 'theory session', we would like to invite you for a short presentation of your current interests and your experiences related to the physics at the GSI. For this presentation, we will provide you with a time slot of 5 minutes (!!) about for each group (or individual, although groups working on the same topic are encouraged to make a single presentation) in order to show and discuss a few transparencies (no beamer presentation, please). To have a good starting point for further discussions, please, address also the following issues:

- the physical systems, processes and effects which are under consideration,
- previous experience and work in heavy-ion research,
- relevance for SPARC and the GSI facility,
- short and medium-term goals (for, say, the next 1-5 years) .

There are a few topics which are of general interest for SPARC in the next years:

- a) QED in few-electron ions and super-heavy atoms;
- b) radiative and non-radiative electron capture into few-electron ions;
- c) generation and measurement of polarized ion beams;
- d) impact ionization; studies on the (double-) differential cross sections and the dependence from the impact parameters,
- e) limits of the semi-classical approximation;
- f) relativistic pair production; bremsstrahlung, etc.

Further suggestions are welcome.

If you participate in the workshop, please, send us a short information whether you wish to take part in this 'theory meeting' and about your main research interests related to the physics at GSI, so that we can arrange a schedule for this meeting. The short introduction of all the groups will be followed by a discussion of whether and how we shall define an 'own position' of the theory within the SPARC project.

Looking forward and hope seeing you at GSI in Darmstadt.

With best wishes

Sincerely Yours

Stephan Fritzsche and Thomas Beier

Ps. If appropriate, please, reply to s.fritzsche@physik.uni-kassel.de (I'll be back from a conference at October, 12th.)