

Minutes SHIPTRAP – collaboration meeting 09/28/2006

Present: K. Blaum, M. Block, A. Chaudhuri, S. Eliseev, R. Ferrer, S. Fritzsche (until 12:00), F. Herfurth, F. Heßberger (until 12:00), V. Kolhinen, J.-V. Kratz, (until 12:00), A. Martín, G. Marx, J. Neumayr, W. Plaß, C. Scheidenberger, M. Sewtz, J. Szerypo, P. Thirolf, G. Vorobjev. C. Schürmann

SHIPTRAP – overview of the activities in 2006 – F. Herfurth

Upcoming experiments

- 8th ...10th of December, ⁴⁰Ar, ¹¹⁶Sn target; Measurement of the stopping distribution in the gas cell and the overall efficiency using the alpha emitter ¹⁵²Er
- 13...17th of December, ECR source ⁴⁸Ca, ²⁰⁸Pb target; ²⁵⁴No mass measurement

Proposals to the EA

- There are 84 shifts left in U214 and 15 shifts in U222.

Efficiency

Optimization of the SHIPTRAP ion-catcher device – J. Neumayr

The principle design decisions for a new SHIPTRAP gas cell to be built in Munich shall be taken before the end of the year (concerning especially detectors and cryogenic parts). The Munich engineer and mechanical workshop object to the idea of a completely cryogenic gas cell because of its complexity, which seems to be impossible to handle with reasonable efforts (large dimension with lots of outside flange connections acting as potential heat bridges). Additionally, it is unclear if all contaminations can be removed (rare gases?). Mechanical construction can not start before January since the engineer post has to be refilled. Written specifications shall be discussed with involved teams before the mechanical construction starts.

Detector concepts – S. Eliseev

Channeltron and Daly detector concepts have been discussed, which both promise 100% detection efficiency. Klaus noted that there is no need to discuss on the short time scale different concepts, since the Channeltron system proved to work in two places already. However, there was until now no absolute detection efficiency measured and it might be easier to use a Daly detector if open access to other experiments is needed. Gerrit mentioned the easy and very reliable use of the Daly type detection at the Greifswald experiments. In the new coupling concept of the Ortho-TOF a removable Channeltron detector is foreseen (W. Plaß).

Selectivity and precision

Isobar Separation for Mass Spectrometry and Decay Spectroscopy at SHIPTRAP – W. Plaß

The concepts for mass separation and ion manipulation in a QMS and a linear Paul trap were introduced. However, we agreed, that a simple linear mass filter RFQ is the best choice compared with the more complicated linear trap. The crucial issue is the separation of regions with different pressures. This is being investigated in the moment. The conceptual design shall be ready this fall and the device will then be ready mid 2007. The design should be done by a professional designer and shall combine the new mass separation RFQ and the bunching section as well as the coupling to the extraction RFQ. The schedule of a multi-reflection time-of-flight spectrometer is not clear yet and main conceptual issues are still open.

The Electrostatic Trap (MR-TOF) project in Greifswald is being started. The physicist in charge, Markus Eritt, is preparing the sketch for the overall system. First components (vacuum chamber and pumps) will be ordered until the end of the year.

Results and plans from the Mainz team – Klaus Blaum

The pumping barrier is well understood and is explained in the diploma thesis of Dennis Neidherr. All tools are at hand to create a functional barrier also at 77K.

The FT-ICR setup is ready for first tests. The aim is to have first ions trapped until December. However, the complete test of the setup, which includes a single ion FT-ICR resonance, might easily take one year.

Discussion

The manuscript on "How to get organized, how to keep people informed, and how to handle publications?" has been distributed and was the basis of the following discussion.

The SHIPTRAP Collaboration

The SHIPTRAP collaboration should include all groups performing experiments at low energy after SHIP defined by the topics they work on. A collaboration board will be formed and decides about organizational issues, concerning especially the occupation and usage of the space and time within the Y7 cave. The collaboration board recommends technical developments to be done by the different partners of the collaboration. Furthermore, the collaboration board decides on the membership in the SHIPTRAP collaboration and calls in new board members. The collaboration board should elect a speaker of the SHIPTRAP collaboration. An advisory committee that is composed of experienced people and helps in the decisions of the collaboration board has been proposed and discussed. It was decided to postpone the decision on the installation of an advisory committee until we discussed this with some of the potential members.

The proposed collaboration board:

- F. Herfurth (Trap Team GSI)
- W. Plaß (TOF-RFQ Team Giessen)
- L. Schweikhard (BroadBand-FTICR Team Greifswald)
- K. Blaum (Trap Team Mainz)
- P. Thirolf (Gas Cell Team Munich)
- K. Wendt and/or M. Sewtz and/or W. Lauth (Optical Spectroscopy Teams Mainz-Quantum, Munich and Mainz-KPH)

All proposed board members are asked to report about the following items concerning the team they represent until January-31, 2007:

- Task of the team with priorities, deliverables, and deadlines
- Contribution of the team to the required manpower
- Contribution of the team to the costs of operation
- Contribution of the team to the investment costs
- Presentations of results obtained by the collaboration at up-coming conferences
- Team members
- Grant applications

A two days collaboration meeting should take place every year. The date shall be chosen for minimal impact on the overall travel effort. Two times a year the collaboration board shall meet.

Publications

Proposal by Klaus: All articles should be sent to the entire collaboration already in the preparation phase, regardless the co-authorship. This would then trigger the discussion of the authorship already in an early stage and not only when it is too close to the deadlines or even after submission.

The definition of a core group that automatically forms the author list of all publications in the coming 12 months was discussed but not decided. Peter disagreed with this proposal. However, it was agreed that there is an "in House core group" defined by the "Trap Team GSI". This group will then be part of all SHIPTRAP publications with online results. It has to be redefined every 12 months. The authors of publications concerning technical developments are to be defined by the responsible group.

Next Meeting

The next meeting will be a collaboration meeting, not only a meeting of the collaboration board. It is proposed to take place at GSI on February-26 and -27, in conjunction to the NUSTAR meeting.

Minutes taken by Frank Herfurth.