

## Minutes of ILIMA collaboration board meeting 08.12.16 at GSI C26.024

Present: Phil Walker, Yuri Litvinov, Helmut Weick, Hans Geissel, Wolfgang Plass, Christophor Kozhuharov, Roman Gernhäuser, Thomas Faestermann.

(Apologies: Klaus Blaum , Zygmunt Patyk, Taka Yamaguchi, Markus Steck)

Ivan Koop, as a subproject leader (BINP) should be invited for all meetings. Jürgen Gerl should be invited as subproject leader for NUSTAR experimental area. Haik Simon as expert for the super-FRS may be not needed every time.

### 1. Membership and previous minutes

Elections of spokesperson, deputy spokesperson and project manager are due at the end of February 2017. Please send nominations to PW by 27<sup>th</sup> February.

Tang Xiaodong from Lanzhou would like to join the collaboration (Prof at Univ. Lanzhou, in the field of astrophysics) – approved by CB.

#### *Previous Minutes*

Beam times in the last year:

1 week channeling in Cave A, extraction through ESR, (only nights) but beam not stable enough. 10 days atomic physics (mainly tests) used also for Schottky characterization.

10 days for low energy nuclear astrophysics – proton capture reactions, limited by scattering into silicon detectors ( $10^6$  ions total).

Cryring operation test with uranium beam. Extraction from ESR worked. Cryring was not closed but the injection should also work.

### 2. Current status of the planned storage rings at GSI-FAIR

HW leads discussion:

- a) Working packages are defined, WG leaders reconfirmed.  
Schottky: CK is WG leader, but Shahab is doing most of the work and has a direct link to Ivan Koop. How to build this into the structure? CK sees no need for change.
- b) CR geometry: Overlap of positions for pockets and Schottkies. Exchangeable sections with ISO-K with metal seals. Edgar Mahner from FAIR has not fully approved this as the baking may be difficult (not decided yet). 1402mm are used by adapters and a 838mm chamber. Supports have to be provided from ILIMA.

- c) TOF distance shorter at 16.8m. (Thesis of Marcel Diwisch from Giessen discusses this item.) YL will investigate if the shorter distance is still sufficient. Larger distance has to be fought for, but there are not many options.
- d) ILIMA Schottkys will be used for CR beam diagnostics. We may get some money back from this side.
- e) Decapole corrector: not in the new CR TDR. It will improve isochronicity by a factor of 10. A weak magnet of 80 mT at the pole tip is needed. Surface coils as in the ESR are not possible. (A separate magnet would be difficult and expensive.) One or two for the whole ring would be sufficient. Adjusted by (TOF or) position-sensitive Schottkys. CK: This measurement is essential. YL: In Lanzhou this is done with TOF in one hour. HW will hand in a written request to Budker which was circulated before the meeting.
- f) 5m beam to wall distance is currently in the plans, which is filled up by the ToF detectors.
- g) Official time plans for the outside have to be available. ILIMA with CR starts in 01.2022. No dummies for the TOF. They have to be available. Offline commissioning in 07.2023. A detailed planning for Phase 0 is needed as well as the TDRs.
- h) Phase 0 proposals will be called for in spring 2017. One-page highlight from each pillar should be written first. The scientific+technical council of GSI discussed this, and maybe not all facilities will be available. We should have a list of unique experiments which can make it into such a doc. PW mass measurement in the region around  $^{208}\text{Pb}$ . Also  $^{205}\text{Tl}$  from  $^{206}\text{Pb}$  (material is there). Discussions expected at next CB.

### 3. Schottky pick-ups

YL: Longitudinal ones are clear – Chen et al. paper is published. Transversal ones have to be tested at TUD with electron beam. Lack of manpower is mentioned (only Shahab Sanjari now works on this). With ERC money YL will build a prototype for the test which will not be a final device (not UHV). In the ESR the real detectors as well as prototype will be tested. New method of phase shift between two Schottkys is to be investigated in a new PhD work. TDR (longitudinal and transversal together): the transversal one still needs time; could be drafted by spring.

### 4. ToF detectors

WP: Kuzminchuk et al. paper on the efficiencies is published. New person for the development has to be found before the TDR can be written. HW: That is too long time. WP: Measurements on timing performances have been done and are in Diwisch's thesis. Missing things like magnet focusing and mechanical construction could be done by an engineer? PW: High level of precision may not be needed for TDR. Foil size of 80mm seems to be still sufficient and space limited anyhow.

5. Other detectors

Najafi et al. paper is published. Simulation may have been ok. The effect of charge exchange in the cooler line is different from that in the opposite straight section. Bare skeleton of the TDR is online to work on. First draft may be there in January.

6. Financial planning

YL: All PSP (Projektstrukturplan) items are still on the list. HW has the list. Escalation factors are under discussion. There are no infrastructure funds, so we may need to spend the project funds on infrastructure and try to find money for detectors from other sources. ILIMA contribution from Giessen was moved from ILIMA to ion catcher in the Verbundforschung? WP: There was no major change in the expression of interest. 50k€ from Mainz was cut. Munich is still 120 k€.

7. Schedule for TDR writing

See earlier discussions. TDR has to be approved by ECE. Later it needs additional detailed specs: risk assessment, safety questions and money. QA has to be in.

8. Experiment proposals for phase 0 (see section 2).

9. Planning for the next ILIMA Open Meeting (27 or 28 February 2017)

Possible speakers include:

X. Tu/ Y. Zhang: Status of Lanzhou

Greg Lane: long-lived isomers below 208Pb

Vladimir Manea: ISOLDE Mass measurements

Sarah Naimi: RIKEN Ring (from Klaus Blaum)

Michael Lestinsky: Cryring

Michael Block: SHE masses

Lund: Dirk Rudolph: Mass measurement with super heavies from hot fusion.

10. Speaker suggestions for the next NuSTAR Annual Meeting:

Vladimir Manea: ISOLDE Mass measurements

11. Other conferences and workshops

2017 STORI in Japan – not yet announced (YL will go). ARIS2017, Colorado 28<sup>th</sup> May.

12. Any other business

No.

13. Date of next ILIMA CB meeting (27 or 28 February 2017). CB on Mon or Tue. Open Meeting Tue or Mon (depending of room availability).

There will be elections! Candidates have to be nominated in time. PW will send out an email for invitation. Proxies should be appointed.