

Minutes of the DESIR Meeting – Open session

J.-C. Thomas: Financing and building issues

- Delay in the construction of the production building: beginning 2014 -> availability of the DESIR facility for equipment installation and commissioning by the beginning of 2016, physics program to start in 2017 unless the construction of DESIR can be anticipated. To be negotiated with the SPIRAL2 management.
- EQUIPEX funding = 9 M€; demand = 14.1 (investment) + 1.1 (operation) = 15.2 M€
 - ➔ Cost reduction to be investigated (replacement of the GPIB by the PIPERADE RFQ ~ 550 K€, shorter operation time ~ 550 k€).
 - ➔ Phasing of the beam line construction to be envisaged.
 - ➔ Need to find complementary funding to build DESIR and the beam lines by the end of 2013 (construction decision) : Europe, IN2P3, GANIL, Région Basse-Normandie, local authorities.

B. Blank: Layout of the experimental hall

- Optimisation of the positioning of the experimental equipment in the DESIR hall is undergoing:
 - PIPERADE system to feed decay study stations,
 - Connexion of the CRIS line of LUMIERE to the main transport line,
 - Trap systems put in the same area (PIPERADE, MLLTrap).
- Beam lines inside DESIR: “boundary conditions” to be defined: minimum distance between deflectors and experimental equipments, maximum angle for the deviations, minimum distance between experimental equipments.

B. Blank: DECA

- DECA: milestone within SPIRAL2 PP with reports on the beam-lines (Luc Perrot, IPN Orsay), the HRS design (Theresa Kurtukian-Nieto, CEN Bordeaux-Gradignan) and the MLLTrap (Peter Thirolf, LMU Munich).
- Commitment for the installation of experimental equipment at DESIR, amounting for a total of ~5 M€.
- MoU to be signed later for the operation of the equipment.
- Within the DESIR EQUIPEX project, a consortium agreement will be signed by the EQUIPEX partners.

G. Ban: status of SHIRaC

- 60 % transmission of a 1 μA Cs¹⁺ ion beam
- Difficult to combine a high transmission (> 50%) and a good energy resolution (below 2 eV) -> presumably related to a RF heating at the extraction; to be investigated.
- Design study with “nuclearization” on the way.

T. Kurtukian Nieto: status of HRS

- Full simulations using COSY INFINITY performed -> Mass resolution~31000, mirror symmetry, point-to-point transmission.

- Optical design validated during a DESIR-HRS Workshop at Bordeaux in November 2011.
- Mechanical study of the modular composition of the HRS (safety requirement) performed.
- Purchase of the dipoles in 2012 (CPER financing).
- Installation at CENBG for commissioning in 2013.
- Installation at SPIRAL2 in 2015.

L. Perrot: DESIR beam line studies

- Rough definition of the beam lines towards DESIR.
- Comparison of GICOSY (D. Toprek) and Tracewin (L. Perrot) calculations along part of the transfer beam line towards DESIR -> Ok.
- Recently, a more detailed study has been performed using Tracewin for the transfer beam line between the production building and the DESIR experimental hall, assuming hard edge electrical fields. It showed that the proposed design is quite good, rather robust with respect to misalignments at the beginning of the beam line and to mistuning of electrostatic equipments. Further optimizations of some of the electrostatic equipment are needed.
- Similar work to be done for the beam line from S3 and S1.

S. Grévy: Presentation of PIPERADE

- Purification ($M/\Delta M \sim 10^5$) and bunching (10^6 ions) of radioactive ions by means of a RFQ coupled to a double Penning Trap system.
- ANR + Région Aquitaine + Univ. Bx1 funding (1.2 M€), coordinated by CENBG + LPC + CSNSM + GANIL + MPI Heidelberg.

P. Thierolf: Status of the MLLTrap device

- Instrumentation work on in-trap α spectroscopy in coincidence with conversion electrons: silicon detector conditioned to deal with cryogenic temperature, high magnetic fields and a HUV environment.
- MPS ("Multi-Passage-Spectrometer"): A/Q separation using a magnet, the field map of which has been characterized; to be coupled to an EBIT source in the future.

M. Bissel: Status of LUMIERE

- CRIS technique very promising in terms of sensitivity (few ions/s) compared to standard collinear laser spectroscopy ($> 10^3$ ions/s) although the hyperfine spectrum resolution is worse (~ 100 MHz viz. 10 MHz) -> LUMIERE should combine both techniques.
- Beta-NMR branch similar to the one implemented at TRIUMF in order to fully exploit the polarization of the atomic beams.
- Feeding of BESTIOL setups with optically polarized beams -> work to be done on the layout of the LUMIERE lines.