Conclusions from the AGATA@GSI meeting in Istanbul and proposed future strategy

All LoIs should be grouped into several different "themes"; a proposition for these themes and possible conveners will be made by the campaign coordinators (CC). For different theme, their size (i.e. number of experiments and requested beam time) will vary. Proponents of the LoIs within each theme should meet in order to discuss and agree the most outstanding physics questions within that theme, based on the submitted LoI, and come up a focussed and co-ordinated set of experiments for that theme. The CC will provide some guidance of the expected size of the beam request for a theme, and this may require re-focussing or combining LoI as appropriate, based on the priorities established for the science.

In preparation of these meetings the GSI group (together with the CC) will make a first technical assessment of the LoIs and give feedback in case of lacking information that needs to be added and/or obvious problems about the feasibility (beams, rates etc.). In addition, general recommendations will be worked out to have coherent proposals, concerning realistic beam intensities, appropriate beam energies and target and thicknesses, rate capabilities, etc.. All meetings will be organized preferably at GSI in order to allow a large participation of the in-house group. They should be open, but a reasonably small number of participants should be ensured.

A first submission of proposals is foreseen for the G-PAC meeting in spring 2011 and a second submission is envisaged one year later. The main reason for this approach is that it allows to first propose the most "straightforward" experiments and to show that we are reaching our goals. The more complex experiments or those building upon results of earlier experiments can then be proposed in the second round. There may also be set-ups which have not been fully commissioned at the time of the first G-PAC meeting. However, it is anticipated that the majority of experiments to be run with AGATA at the FRS will come from the *current* set of LoI. In exceptional cases, a new idea may be proposed (e.g. if a timely opportunity arises) and in this case the spokespersons within the relevant theme will have to work out how to accommodate this among the other priorities.

At the PAC meetings each experiment will be presented as an individual proposal. This will allow more detailed presentations and a better visibility of the proponents. However, a careful coordination of the presentations is needed in order to avoid overlap. An introductory talk will present the generic physics themes and the technical details of the AGATA@GSI campaign. The total beam time request will be discussed later, but it should be in a reasonable relation to the available beam time. A discussion will take place with the GSI management about the advice that GSI will give to G-PAC about the allocation of beam time. Note that we expect in total about/at least 12 weeks of beam time within a 15-18 months period from late 2011 to early 2013.

A representative from each experiment should participate in the AGATA@GSI simulation working group collaborating on simulations concerning the FRS (Mocadi), the LYCCA detection system and AGATA. All relevant codes will be made available on the web. The goal of the group is to work together on coherent and reliable simulations for all parts of the experiments. GSI offers the possibility to organize a "hands-on training workshop" for these persons. More elaborated proposals (containing all information necessary for an evaluation of their feasibility) will be discussed and assessed in working meetings at GSI to be held in early November 2010. They should be transformed into full proposals depending on the PAC deadline.

Experiments requesting new beams should prepare a statement regarding the intensities that are needed in order to lead to superior experimental results. If several new beams are requested a prioritization should be performed. As general guideline improvements below a factor of 5-10 are not a realistic basis for requesting such a development. In parallel, the local group will contact the accelerator experts and inquire about the feasibility and expected performance. Experiments using ancillary devices need to nominate a contact person for the (local) electronics and DAQ and infrastructure groups.

List of general themes and conveners

Theme 1: Nuclear structure effects near N=Z: The neutron-proton degree of freedom and the astrophysical rp-process
G. de Angelis, LNL

-Bentley/Wadsworth et al.: "Isospin symmetry and transition rates in isobaric multiplets (at A=42&64)"
-Cederwall/Wadsworth et al.: "Search for new spin-aligned neutron-proton coupling scheme at N=Z: Measurement of B(E2) for the first 2^+ states in $^{92-96}$Pd and $^{96-98}$Cd"
-Domingo-Pardo/Galaviz et al.: "Spectroscopic study of the key rp-process waiting-point nucleus ^{58}Zn"
-Gadea/Ur et al. "Coulomb excitation of the band-terminating 12^+ yrast trap in ^{52}Fe"
-Korten et al.: "Investigating Octupole Collectivity in the N=Z nucleus ^{64}Ge through relat. Coulex"
-Recchia et al.: "Isospin Symmetry test on the semi-magic 44Cr: Towards the dripline in the f7/2 shell"
-Sahin et al.: "Breaking the isospin symmetry and Coulomb Energy Differences in the A=70 mass region: spectroscopy and lifetimes in the T_z=-1 nucleus ^{70}Kr"

Theme 2: Shell evolution in light neutron-rich nuclei: N=40 and below
A. Algora, IFIC Valencia

- Bednarczyk et al.: "Measurements of gamma-particle angular distribution in Coulomb excited "island of inversion nuclei (^{30,32}Mg)"
- Duchene/Domingo-Pardo et al.: "Deformation in N=40 nuclei"
- Lenzi et al.: "Measuring deformation at the third island of inversion ($^{66-68}$Fe)"
- Lenzi/Gadea/Dewald et al.:"Evolution of deformation in n-rich $^{58-62}$Cr isotopes"
- Obertelli et al.: "Investigating the collectivity of N=40 n-rich nuclei via the first spectroscopy of ^{64}Cr"
- Mengoni et al.: "Shell Evolution along the n-rich ^{47,48}Ar isotopes"
- Valiente-Dobon et al.: "Investigating the sub-shell closure at N=34: spectroscopy of ^{54,55}Sc"

Theme 3: Nuclear structure studies towards ^{78}Ni and the evolution of the N=50 shell closure
G. Duchene, IPHC Strasbourg

- Domingo Pardo et al.: "Lifetime Measurement in ^{74}Ni: probing the core polarisation around doubly magic ^{78}Ni"
- Pietralla et al.: "Relativistic Coulomb M1 excitation of n-rich $^{85}Br_{50}$"
- Van de Walle et al.: "Shell Evolution around ^{68}Ni and the structure of ^{75}Cu"
- Verney/Niikura et al.: "Towards ^{78}Ni: In-beam γ-ray spectroscopy of the exotic nuclei close to N=50"

Theme 4: Shape evolution, collective motion and pygmy resonances in nuclei far from stability
Zs. Podolyak, U. Surrey

- Back et al.: "Spectroscopy and B(E2) measurements in n-rich $^{108\text{-}112}$Mo nuclei: Shape transitions near astrophysical r-process path
- Domingo-Pardo/Rodriguez et al.: "Spectroscopic insight into the shape coexistence of the n-deficient $^{76\text{-}80}$Sr and Zr isotopes
- Gottardo "Study of n-rich Ru, Pd nuclei for proton neutron triaxiality in IBM2"
- Podolyak/Rudolph et al. "Quadratic evolution of collectivity around ^{208}Pb"
- Pietry et al.: "Shape-evolution in n-rich $^{104\text{-}108}$Zr isotopes through secondary fragmentation reaction"
- Regan/Nyberg/Ollier et al. "Relativistic Coulex of deformed n-rich A=170-190: Evolution of structure from valence maximum to the phase transition region"
- Wieland et al "The pygmy dipole resonance in ^{64}Fe and the properties of the n-skin"

Theme 5: Nuclear structure studies approaching ^{100}Sn and the heaviest self-conjugate nuclei
B. Cederwall, KTH Stockholm

- Cederkall et al. "Relativistic Coulex of n-deficient isotopes in the ^{100}Sn region"
- Cederwall et al.: "Measurement of B(E2) values for the first-excited 2+ states in highly n-deficient ^{106,108}Te and ^{112}Xe by relativ. Coulex"
- Dombradi et al.: "Study of the anomalous quadrupole properties of the n-deficient ^{104,106,108}Sn through proton inelastic scattering"
- Gadea et al.:"Coherent proton–neutron contribution to octupole correlations in the neutron-deficient nuclei in the ^{112}Ba region"

Theme 6: Structure of nuclei in the astrophysically important region near ^{132}Sn
M. Gorska, GSI

- Boutachkov et al. "Measurement of spectroscopic factors in the ^{132}Sn region"
- Fransen et al. "Lifetime Measurement of the 2^+ state in ^{124,126}Cd and test of valence proton symmetry"
- Jungclaus/Pietri et al. "Anomalous behaviour of 2+ excitations around ^{132}Sn"
- Jungclaus et al. "Magnetic moment measurements with the high-velocity transient field technique at relativistic energies in ^{134}Te"
- Krücken et al. "Coulomb excitation of ^{127,128}Cd"