



News of the ISOLDE Group

2nd of February 2016

Maria J. G. Borge

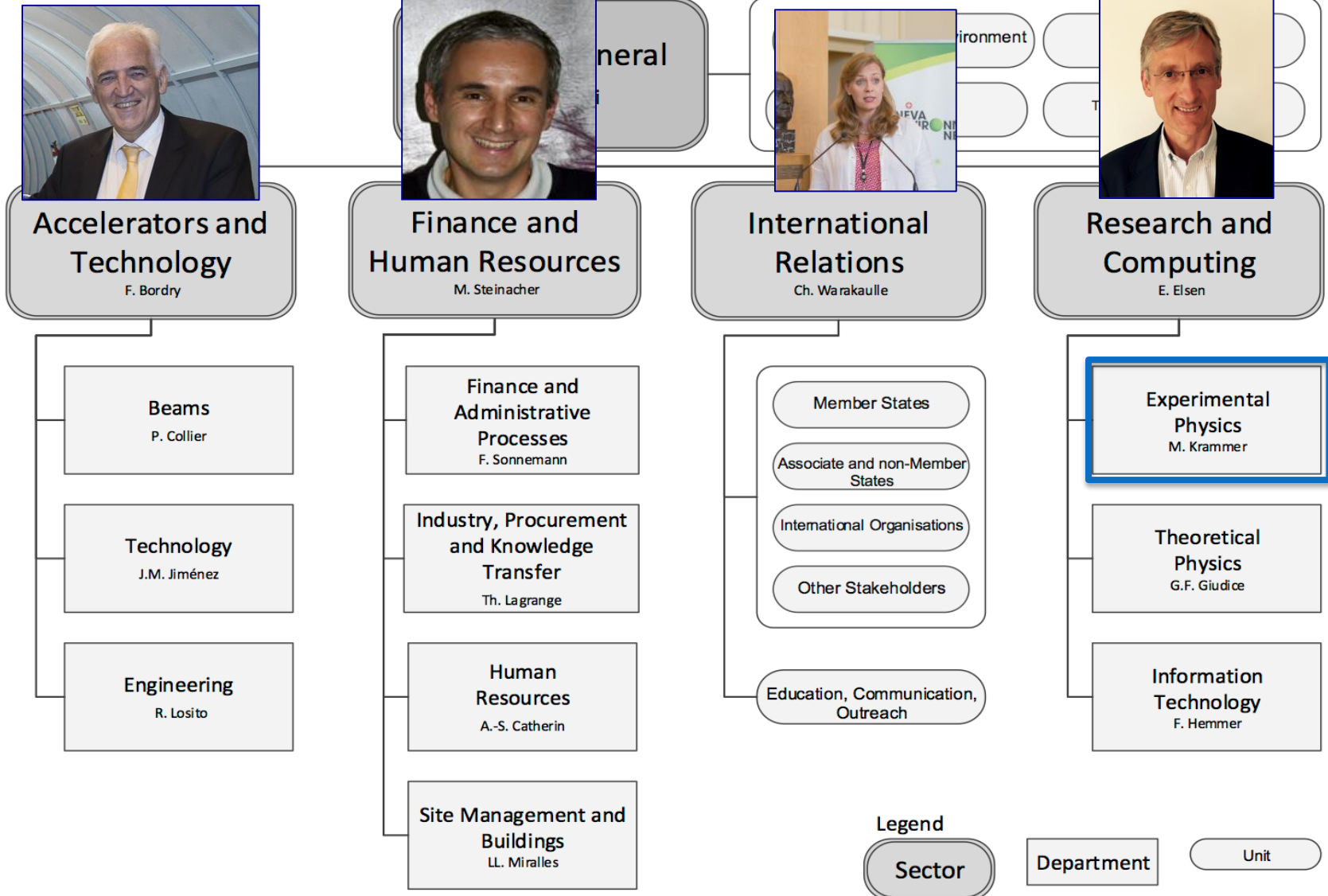


Outline

- New CERN organization
- Associates, Fellows and Students
- Courses and activities during 2016
- ENSAR 2
- EURISOL-DF
- Long Range Plan
- ISOLDE NewsLetter
- 50y of Exotic beams: The ISOLDE Laboratory portrait.
- Experiments
- HIE-ISOLDE Phase I celebration
- Visits statistics

New

Organization



Fellows, Associates & Students

- Associates (**11th March 2016**)
 - Giacomo de Angelis, Oct2015-April2016
 - Olivier Sorlin, Feb2016-June2016
- Corresponding Associates (**11th March 2016**)
 - Ismael Martel, Sept- 2015 - Feb 2016
 - **Georgi Rainovski** (Ago – Nov 2016)
- Fellows: (**1st of March 2016**)
 - ✓ Stephan Ettenbauer (June 2014 – Jan 2017, COLLAPS, Polarisation beams)/**ERC**
 - ✓ Kara Lynch (Jan 2015 – Dec 2017)
 - ✓ Miguel Madurga (June 2014 – July 2016) (Nuclear structure)
 - ✓ **Vladimir Manea** (Jan2016 – Dec 2017)
 - ✓ Akira Miyazaki (June 2014- May 2016, SC cavities)
 - ✓ Torben E. Molholt (Feb 2015 – Jan2017) (Applied Sciences)
 - ✓ **Frank Wienholtz** (Jan2016 – Dec2018) (Applied Sciences, ERC)
- Doctoral student (**26 April and 7 June 2016**):
 - ✓ Doctoral Student CERN for IDS: Razvan Lica (Sep2014 – August 2017)
 - ✓ Doctoral Program for life sciences (50% GR, 33% CERN,13% Madga's ERC)
 - Stavroula Pallada (March 2014 - Feb 2017), Biophysics
 - ✓ Doctoral Program with Germany
 - Andree Werkens (feb 2015-Jan2018) ISOLTRAP

Courses / Workshops / News

● Courses

- Separator courses 23th - 27th of November 2015
- Coulex school the 27th-29th of January 2016 (24 registered)
- **Course of Nuclear Structure & Nuclear astrophysics**
6-8 April (tbc)

● Workshop & conferences

- **HIE-ISOLDE Workshop:**
1st of February 2016
- **Next ISOLDE Workshop**
7-9 December 2016

● ISOLDE Spring Newsletter: New layout

● ENSAR 2

- ✓ Possible start 1st of April. Kick-off Meeting mid-April.



Towards EURISOL-DF

EURISOL DF is a necessary intermediate and ambitious step towards EURISOL.

Members: ALTO (?) GANIL, ISOLDE, ISOL@MYRRHA, Jyvaskyla, SPES, COPIN (Poland)

Goals of EURISOL-DF

- Prepare a strong physics case for RIB science and applications
- Support, upgrade, optimize and coordinate European ISOL towards EURISOL
- Get EURISOL-DF on the ESFRI List as candidate project
- Web page: www.eurisol.org/eurisol_df/

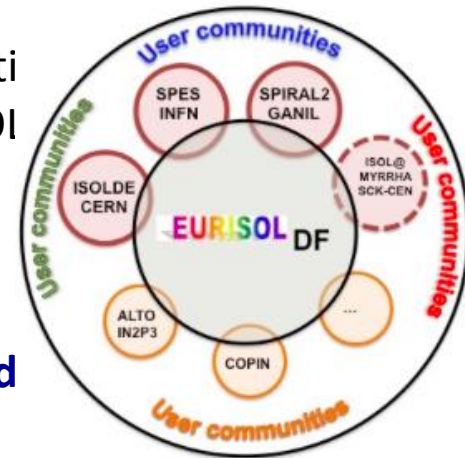
To prepare the case for Europe 5 working groups are created

- WG1 Science and Application: Coordinator R. Raabe)
- WG2 Acceleration: Coordinator Alberto Facco
- WG3 Beam Handling Coordinator M Borge.
- WG4 Spectrometers and Detectors Coordinator: Herve Savajols
- WG5 EURISOL-DF Relationships and Legal Structure coordinator Angela Bracco

Timeline: First meeting working Group in September 2015

Skeleton of WG's document to be reported to EURISOL SC 10th of March

Text ready for June 2016



NuPECC News: Long Range Plan

- The Nuclear Physics European Collaboration Committee has started the preparation of a new Long Range Plan for Nuclear Science in Europe.
- Last one in 2010 . LRP is important reference for a period of 5-7 years.
- This process will engage the community during 2016.
- 6 chapters have been identified like in the editions of 2004 and 2010.
 - 1. **Hadron Physics.** *Diego Bettoni (Ferrara) + Hartmut Wittig (Mainz)*
 - 2. **Properties of strong-interacting Matter**
Silvia Masciocchi (GSI Darmstadt) + François Gélis (CEA Saclay)
 - 3. **Nuclear Structure and Reaction Dynamics.**
John Simpson (Daresbury) + Elias Khan (Orsay).
 - 4. **Nuclear Astrophysics**
Gabriel Martinez Pinedo (TU Darmstadt) + Alison Laird (York)
 - 5. **Symmetries and Fundamental Interactions**
Klaus Kirch (PSI) + Klaus Blaum (MPI Heidelberg)
 - 6. **Applications and societal benefits**
Marco Durante (TIFPA Trento) + Alain Letourneau (CEA Saclay).
- The town meeting to have the final public discussion will be hosted by GSI-FAIR in January 2017.

New Format for ISOLDE Newsletter

- The previous format was difficult to handle.
- The new one will follow the structure.
- It will be distributed at the end of the week, with deadline for submission of contributions the 13th of March.

ISOLDE

ISOLDE Newsletter 2016



Ground state properties

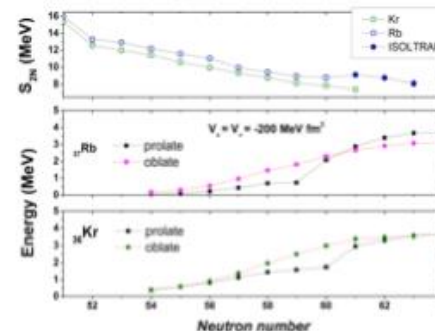
Results of experiment IS535
Web: isoltrap.web.cern.ch

*Dinko Atanasov for the
ISOLTRAP collaboration*

At the end of the 2012 ISOLDE experimental campaign, the masses of several neutron-rich rubidium (Rb) and caesium (Cs) isotopes were determined with the mass spectrometer ISOLTRAP. Initially, the experiment had been scheduled to measure the masses of neutron-rich copper isotopes, but failed to do so due to unexpected difficulties in operating the target unit. Nevertheless, the target provided enough surface ionized beams and an alternative program was selected. As a result, precision mass measurements of $^{98-100}\text{Rb}$ and $^{132,144-148}\text{Cs}$ isotopes were accomplished. The mass of ^{100}Rb was measured for the first time. With a half-life of 51(8) ms, this nuclide is one of the shortest-lived ever measured at ISOLTRAP using the precision Penning trap. All other mass values have been improved significantly.

Of particular importance for nuclear theory are the nuclei found in transitional regions between spherical and deformed intrinsic shapes. The neutron-rich, mid-shell isotopes of Rb and Cs, are one such example. The isotope ^{100}Rb is located in the well-known $A \sim 100$ shape-transition region. The isotope ^{148}Cs is located in a

two equilibrium shapes (oblate and prolate, respectively). The 2nd and 3rd panels of Fig. 1 compare the binding energies of the two equilibrium configurations for Rb and Kr (the energy of the spherical solution is subtracted to facilitate comparison, giving the so-called deformation energy). The configuration of highest binding energy is interpreted as the ground-state configuration.



ISOLDE Laboratory Portrait

- Tentative title: “50 y of exotic beams at ISOLDE: A laboratory Portrait”
- To be publish in J Phys G in 2017
- Content:
 - Experimental facilities and methods (on invitation). 15-10 pages
 - Articles by submission. It should contained unpublished material. Propose letter of interest (until 15th of March)
 - Decay Spectroscopy
 - Exotic decay modes
 - Nuclear ground state properties: masses, spins, radii, moments ...
 - Post-accelerated beams
 - Weak interaction Studies.
 - Applications
 - Possible theoretical contributions.: Alfredo Poves, Stephane Goriely, [Achim Schrenk](#), Witek Nazarewicz.
- Timeline: Invited contribution sent in February and deadline : 1st of November

Experiments

● NICOLE: Fridge repaired 2013 not yet tested

After request in November of damage to NICOLE due to installations of HIE-ISOLDE. Below the list received 29 Jan 2016

- The LHe cold trap was bent by 80 degrees (Quotation by ICE- OXFORD 1400 pounds)
- The LN2 filling tube was also bent (fragile!). To be machined or ordered.
- When making space for the new big power supply. The pumps where pushed away while still electrically connected a new power cable has to be installed for at least one pump.

● HELICOIDAL spectrometer →

- Expected to be shipped to CERN any moment.
- Identification of space in b. 180 for test and commissioning. Space requested to EP.

HIE-ISOLDE Phase I celebration

- **Chosen date** : Wednesday 28th of September 2016
- Please send a list of the people from your country that you consider important to invite.
- **Text:**



ISOLDE

*The ISOLDE Collaboration
request the pleasure of the company of*

On Wednesday September 28, 2016 from 11-14:30h

*To Celebrate the accomplishment of
HIE-ISOLDE phase 1*



ISOLDE Visits: Nationality of visitor



2014

Total visitors: 745



2015

Total visitors: 857

- Belgium
- CERN
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Netherlands
- Other
- Poland
- Serbia
- Singapore
- South Korea
- Spain
- Sweden
- Switzerland
- UK

ISOLDE Visits: Occupation of visitor



2014

Total visitors: 745



2015

Total visitors: 857

- Students (School)
- Students (Uni)
- Professional
- VIP
- Media
- Teachers