

Physics with SPIRAL2 Heavy Ion Beams

December 12-16, 2022 - GANIL



PROGRAM

[Remote access](#)



Location : Ganil Guest House

- **13:40 – 14:00 : Patricia Roussel-Chomaz / Fanny Farget (GANIL)**
"Welcome & Introduction talk"

Session 1: SPIRAL2, LINAC, S³, NEWGAIN

Chair: Iulian Stefan (IJCLab)

Invited speakers:

- **14:00 - 14:30 : Guillaume Normand (GANIL) [25 + 5 mn]**
"Status of the LINAC"
- **14:30 - 14:50 : Michael Dubois (GANIL) [15 + 5 mn]**
"Heavy ion beam developments"
- **14:50 – 15:00 : Dieter Ackermann (GANIL) [7 + 3 mn]**
"EURASIS initiative"
- **15:00 – 15:30 : Martial Authier (Irfu) [25 + 5 mn]**
"Status of S³"
- **15:30 – 16:00 : Marie-Hélène Moscatello (GANIL) [25 + 5 mn]**
"Status of NEWGAIN"

16:00 – 16:30 Coffee break

Session 2: S³ Spectrometer / Targets

Chair: Hervé Savajols (GANIL)

Invited speakers:

- **16:30 – 16:45 : Antoine Drouart (Irfu) [10 + 5 mn]**
"S³ performances"
- **16:45 – 17:00 : Bertrand Jacquot (GANIL) [10 + 5 mn]**
"S³ commissioning"
- **17:00 – 17:20 : Christelle Stodel (GANIL) [15 + 5 mn]**
"Target development @ GANIL"

Selected contributions:

- **17:20 – 17:40 : Kieran Kessaci (IPHC) [15 + 5 mn]**
"Innovative material developments for target backings"
- **17:40 – 18:00 : Christoph E. Düllmann (U. Mainz) [15 + 5 mn]**
"Key aspects of actinide target production for superheavy element studies using high-intensity stable beams"
- **18:00 – 18:20 : Ernst Artes (U. Mainz) [15 + 5 mn]**
"Development of actinide targets for SHE production and assessment of their performance in intense heavy-ion beams"

19:00 Cocktail at the GANIL Guest House

Location : Grand amphi de l'ENSI Caen B

Session 3: Instrumentation 1

Chair: Julien Piot (GANIL)

Invited speakers:

- **9:00 – 9:30 : Rikel Chakma (GANIL) [25 + 5 mn]**
"Status of SIRIUS detector array"
- **9:30 – 9:45 : Julien Pancin (GANIL) [12 + 3 mn]**
"Possible upgrades of SIRIUS SeD detector"
- **9:45 48– 10:00 : Karl Hauschild (IJCLab) [12 + 3 mn]**
"X-ray detection for SIRIUS" - Virtual
- **10:00 – 10:15 : Florent Bouyjou (Irfu) [12 + 3 mn]**
"FEANICS : A new multi-channel Front-End Adaptive gain Integrated CircuitS ASIC"

Selected contributions:

- **10:15 – 10:30 : Nabil Karkour (IJCLab) [12 + 3 mn]**
"Ideas for future upgrade of SIRIUS"

10:30 – 11:00 Coffee break

Session 4: Instrumentation 2

Chair: Vladimir Manea (IJCLab)

Invited speakers:

- **11:00 – 11:25 : Antoine de Roubin (KU Leuven) [20 + 5 mn]**
"Status of S3-LEB: off-line commissioning results"
- **11:25 – 11:45 : Alejandro Ortiz (GANIL) [15 + 5 mn]**
"S³-LEB laser systems: off-line results and developments"
- **11:45 – 12:05 : Nathalie Lecesne (GANIL) [15 + 5 mn]**
"S3-LEB on-line commissioning: roadmap"
- **12:05 – 12:20 : Damien Thisse (Irfu) [12 + 3 mn]**
"Status of SEASON"
- **12:20 – 12:35 : Wenling Dong (IJCLab) [12 + 3 mn]**
"Status of the FRIENDS3 project"
- **12:35 – 12:50 : David Verney (IJCLab) [12 + 3 mn]**
"Tape station at S³"

12:50 – 14:00 Lunch at the GANIL cafeteria

Session 5: Instrumentation 3

Chair: Bertram Blank (LP2i)

Invited speakers:

- **14:00 – 14:30 : Emily Lamour (INSP) [25 + 5 mn]**
"FISIC"
- **14:30 – 15:00 : Jean-Charles Thomas (GANIL) [25 + 5 mn]**
"DESIR infrastructure and beam lines"
- **15:00 – 15:30 : Mathias Gerbaux (LP2i) [25 + 5 mn]**
"HRS – GPIB - PIPERADE" - Virtual
- **15:30 – 16:00 : Elodie Morin (IJCLab) [25 + 5 mn]**
"MLLTrap and LINO"

16:00 – 16:30 Coffee break

Session 6: General introduction on the physics with S^3 beams

Chair: Jean Paul Ebran (DAM)

Invited speakers:

- **16:30 – 16:55 : Benjamin Bally (CEA Paris-Saclay) [20 + 5 mn]**
"PGCM: Recent developments and applications"
- **16:55 – 17:20 : Frédéric Nowacki (IPHC) [20 + 5 mn]**
"Shell model description of $N=Z$ nuclei" – VIRTUAL
- **17:20 – 17:45 : Lukas Pasteka [20 + 5 mn]**
"High-accuracy electronic structure calculations in support of spectroscopy experiments" – VIRTUAL

Selected contributions:

- **17:45 – 18:05 : Michal Kowal (Institute of Physics Warsaw) [15 + 5 mn]**
Long-Lived high K GS and isomers in super-heavy nuclei"

Location : Grand amphi de l'ENSI Caen B

Session 7: General introduction on the physics with S³ beams

Chair: Michael Block (U. Mainz)

Invited speakers:

- **9:00 – 9:30 : Sebastian Raeder (GSI) [25 + 5 mn]**
"Status and perspectives of laser spectroscopy"
- **9:30 – 10:00 : Aracelli Lopez-Martens (IJCLab) [25 + 5 mn]**
"Status and perspectives of spectroscopy of heavy nuclei"
- **10:00 – 10:30 : Pierre Delahaye (GANIL) [25 + 5 mn]**
"Status and perspectives of studies of fundamental symmetries/interactions"

10:30 – 11:00 Coffee break

Session 8: Revised LOIs 2018

Chair: Aracelli Lopez-Martens (IJCLab)

Invited speakers:

- **11:00 – 11:15 : Barbara Sulignano (Irfu) [12 + 3 mn]**
"Introduction – general context"
- **11:15 – 11:40 : Aracelli Lopez-Martens (IJCLab) [20 + 5 mn]**
"Detailed study of the K isomers in ²⁵⁶Rf"
- **11:40 – 12:05 : Khuyagbaatar Jadambaa (GSI) [20 + 5 mn]**
"Decay spectroscopy of the heaviest nuclei at TASCA"
- **12:05 – 12:30 : Stanislav Antalic (U. Bratislava) [20 + 5 mn]**
"Alpha-decay spectroscopy of odd-Z isotopes in fermium region"
- **12:30 – 12:55 : Christelle Stodel (GANIL) [20 + 5 mn]**
"Reaction mechanism studies"

12:55 – 14:15 Lunch at the GANIL cafeteria

Session 9: Revised LOIs 2018

Chair: Piet Van Duppen (KU Leuven)

Invited speakers:

- **14:15 – 14:30 : Dinko Antanasov (LP2i) [12 + 3 mn]**
“Mass measurements around ^{100}Sn (from Ag to Sn)”
- **14:30 – 14:45 : Lucia Caceres (GANIL) [12 + 3 mn]**
“Laser spectroscopy around ^{100}Sn (from Ag to Sn)”
- **14:45 – 15:00 : Dorottya Sohler (MTA Atomki) [12 + 3 mn]**
“Determination of quadrupole moments of along the Sb isotopic chain until the proton drip line)”
- **15:00 – 15:15 : Raphael Ferrer (KU Leuven) [12 + 3 mn]**
“IGLIS studies of $^{210-213}\text{Ac}$ and $^{213,215}\text{Th}$ ”
- **15:15 – 15:30 : Marine Vandebroek (Irfu) [12 + 3 mn]**
“Search for octupole deformation in $^{225-228}\text{U}$ ”
- **15:30 – 15:45 : Julien Piot (GANIL) [12 + 3 mn]**
“Fundamental properties of fermium isotopes around $N=152$ ”
- **15:45 – 16:00 : Stéphane Grévy (LP2i) [12 + 3 mn]**
“Mass measurements and laser spectroscopy in the Zr region” – VIRTUAL

16:00 – 16:30 Coffee break

Session 10: S³ scientific program (New idea – further developments)

Chair: Serge Franchoo (IJCLab)

Selected contributions:

- **16:00 – 16:25 : Vladimir Manéa (IJCLab) [20 + 5 mn]**
“Study of neutron-deficient medium mass nuclei”

Invited speaker:

- **16:25 – 16:45 : Mikhail Athanasakis (KU Leuven - CERN) [15 + 5 mn] -**
“Exploring the possibility of molecular laser spectroscopy”

Selected contributions:

- **16:45 – 17:05 : Pauline Ascher (LP2i) [15 + 5 mn]**
“Mass measurements with S3 beams at DESIR and S3-LEB”
- **17:05 – 17:25 : Sarah Naimi (IJCLab) [15 + 5 mn]**
“Studying highly charged ions of heavy ions produced with NEWGAIN”
- **17:25 – 17:45 : Cristina Petrone (IFINHH) [15 + 5 mn]**
“Rethinking secondary reactions in the intermediate focal plane of S3”
- **17:45 – 18:05 : Enrique Minaya Ramirez (IJCLAB) [15 + 5 mn]**
“Precision mass measurements of nuclei in the superheavy region with MLLTRAP at DESIR”

18:30 – 19:30 S³ User Collaboration Council (closed session)

Location : Ganil Guest House

- **9:00 – 9:10 : Iulian Stefan (IJCLab) [7 + 3 mn]**
"Opportunities with NEWGAIN"

Session 11: Interdisciplinary research with NEWGAIN

Chair: Clara Grygiel (CIMAP)

Invited speakers:

- **9:10 – 9:40 : Frédérique PELLEMOINE (Fermilab) [25 + 5 mn]**
"High power targetry R&D program at Fermilab" – VIRTUAL
- **9:40 – 10h:00 : Alexis DUJARRIER (CIMAP) [15 + 5 mn]**
"Microstructure evolution under irradiation of the additively manufactured Ni-20Cr"
- **10:00 – 10:30 : Philippe BODUCH (CIMAP) [25 + 5 mn]**
"Irradiation of ice analogs for astrophysics"

10:30 – 11:00 Coffee break

Session 12: New opportunities with S³ beams in the framework of NEWGAIN (heavy and superheavy nuclei)

Chair: Dieter Ackermann (GANIL)

Invited speakers

- **11:00 – 11:25 : Christoph E. Düllmann (U. Mainz) [20 + 5 mn]**
"Superheavy elements from present to future: studies at a next-generation facility"
- **11:25 – 11:50 : Darek Seweryniak (ANL) [20 + 5 mn]**
"Decay spectroscopy of the heaviest nuclei with S3 using beams offered by NEWGAIN+SPIRAL2"
- **11:50 – 12:15 : Katsuhisa Nishio (JAE) [20 + 5 mn]**
"Experiments using recoil mass separator and fission studies at JAEA tandem"

Selected contributions:

- **12:15 – 12:30 : Silvia Bara (KU Leuven) [12 + 3 mn]**
"Beta-delayed fission of neutron-deficient isotopes"
- **12:30 – 12:45 : Rafael Ferrer (KU Leuven) [12 + 3 mn]**
"IGLIS studies on Cf isotopes and atomic level search in ²⁵¹Md"
- **12:45 – 13:00 : Antoine Drouart (Irfu) [12 + 3 mn]**
"Nuclear structure in the vicinity of N=162 – follow up on the abstract submitted to the S³ workshop in 2018"

13:00 – 14:00 Lunch at the GANIL cafeteria

Session 13: New opportunities with S³ beams in the framework of NEWGAIN (p-nuclei)

Chair: Lucia Caceres (GANIL)

Invited speakers

- **14:00 – 14:25 : Darek Seweryniak (ANL) [20 + 5 mn]**
"(¹¹²Ba)-¹⁰⁸Xe-¹⁰⁴Te-¹⁰⁰Sn alpha-decay chain"
- **14:25 – 14:50 : B. Blank (LP2i) [20 + 5 mn]**
"Cluster radioactivity ¹¹²Ba-¹¹⁴Ba"
- **14:50 – 15:15 : Antoine de Roubin (KU Leuven) [20 + 5 mn]**
"Proton radioactivity"

Selected contributions

- **15:15 – 15:30 : Maud Versteegen (LP2i) [12 + 3 mn]**
"Search for weak exotic couplings at DESIR" - VIRTUAL
- **15:30 – 15:45 : Xesus Pereira-Lopez (CENS IBS)[12 + 3 mn]**
"Experiment probing isospin symmetry"
- **15:45 – 16:00 : Alain Goasduff (LNL) [12 + 3 mn] TBC**
"Search for octupole structures in the light U and Th isotopes via multinucleon transfer reaction and fast timing at LINAC"

16:00 – 16:30 Coffee break

Session 14: New opportunities with NEWGAIN

Chair: Barbara Sulignano (Irfu)

Invited speakers

- **16:30 – 16:40 : Christophe Theisen (Irfu) [7 + 3 mn]**
"MNTs at Spiral2?"
- **16:40 – 17:05 : Anu Kankainen (U. JYFL) [20 + 5 mn]**
"Multi-nucleon transfer reactions to explore new regions of nuclei at IGISOL"
- **17:05 – 17:30 : Yutaka Watanabe (KEK, IPNS) [20 + 5 mn]**
"Spectroscopy of neutron-rich nuclei produced in multinucleon transfer reactions at KISS"
- **17:30 – 17:55 : Masato Asai (JAE) [20 + 5 mn]**
"Spectroscopy and fission studies for neutron-rich heavy actinide nuclei"
- **17:55 – 18:10 : Timo Dickel (GSI) [10 + 5 mn]**
"Ongoing and planned MNT experiments at FAIR" – VIRTUAL

Selected contributions

- **18:10 – 18:30 : David Verney (IJCLab) [15 + 5 mn]**
"Some reflections on the possibility of generating secondary beams in ISOL mode from the interaction of NEWGAIN beams in matter"

19:30 DINER

Location : Ganil Guest House

Session 15: Concluding remarks – Roadmap per program

- 9:00 – 10:00 : H. Savajols, I. Stefan, B. Blank, D. Ackermann, C. Grygiel, E. Lamour

VISIT SPIRAL2

- 10:30 – 13:00.