Status of SPIRAL 2

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GANIL

www.ganil-spiral2.eu
Phase 1:
Increase the intensity of stable beams by a factor 10 to 100

10 pA (6.10^{13} pps) \ A < 50

Phase 2:
- Produce exotic nuclei with very-high rates (factor 10 to 1000 higher than present facility)
- Expand the range of exotic nuclei to \ Z > 40 \ A > 80

Post-acceleration of high intensity RIB through the CIME cyclotron to the current GANIL facility

SPIRAL2 is on the list of the European Strategy Forum on Research Infrastructures (ESFRI)
New SPIRAL2 Construction strategy
as defined by the Steering Committee in June 2013

Phase 1
under construction
New SPIRAL2 Construction strategy

as defined by the Steering Committee in June 2013

- Construction of the DESIR buildings including 3 transfer tunnels and 2 beam lines connecting $S^3$ and SPIRAL1 to DESIR by 2018
- Construct RIB production building (Phase 2) later
New SPIRAL2 Construction strategy
as defined by the Steering Committee in June 2013

- Construction of the DESIR buildings including 3 transfer tunnels and 2 beam lines connecting S³ and SPIRAL1 to DESIR by 2018
- Construct RIB production building (Phase 2) later
Civil Construction

100% of the concrete done (15000m$^3$)
Installation is going on

May 2013
**S3 Physics case (16 LoIs)**
- VHE – SHE elements
- Proton drip-line and N=Z
- Nuclear astrophysics
- Atomic physics

**High power**
Rotating targets including actinides

**Beam dump & Movable fingers**

**Large acceptance**
SC Multipoles

**First experiment in 2016**

**FISIC setup**
Fast Ion Slow Ion Collisions

**Implantation-decay station at the mass dispersive plan**

**DESIR**
Low Energy Branch
Magnets

Open triplet:
Under construction
By Sigmaphi
Kick-off meeting
On July the 3rd

Delivered:
March 2013

3 × Dipoles

7 × SC multipoles
Design validated
Prototype construction
started in March

Electric Dipole
Under design phase
GANIL/SPIRAL 2 facility: status & outlook

Phase 1
Commissioning/ experiments in 2014/15

NFS MoU
S3 EQUIPEX
DESIR Coll. Agreement – DECA

Phase 2 (RIB)

EXOGAM 2 Coll. Agreement
PARIS MoU
gammas

NEDA MoU
neutrons

Charged particles
ACTAR-TPC Coll. Agreement
FAZIA MoU

GASPARD

ACCELERATEUR
PRODUCTION
GANIL EXISTANT
Bilateral Agreements for SPIRAL2

Recently:
MoU SCK-CEN (B), MoU INFN-LNS (I), MoU IBS (Korea)
PICS PRISM: “Purification des faisceaux Radioactifs ISOL par Ionisation Laser et Séparation en Masse” (TRIUMF,GANIL,CENBG,CSNSM)
LEA franco-polonais “COPIGAL”: prolongation for 4 years (signed Nov 2012)

In progress: MoU Flandre–SPIRAL2, MoU NCSRD (Greece), MoU KSU (Saoudi Arabia), LEA with Bulgaria
Renewal of MOU’s with MSU & ANL (USA)
GDRE for Instrumentation Coordination Comittee (ICC): France, Belgium, Germany, Poland
European & National Projects for SPIRAL2

**CRISP**
- GANIL participant – 1 M€ for SPIRAL2  2011 – 2014
  *Discussion on CRISP2 proposal in Horizon 2020 with FAIR & ELI-NP*

**ACTAR**
- ERC Starting Grant – 1,3 M€ 2014 – 2019
  Principal Investigator: Geoff G. Grinyer - GANIL

**CHANDA**
- FP7 EURATOM project
- GANIL participant
- 0.2 M€ for experiments at NFS

**French grants (ANR, EQUIPEX)**
Beginning of operation of SPIRAL2 Phase 1 with NFS from the beginning of 2015 and S3 from the beginning of 2016

Goal: produce first high-quality physics results soon after commissioning

New strategy for SPIRAL 2 Phase 2
- Goal: construct DESIR by 2018 and RIB production building by ≥2020
- Continue construction of new generation detectors for GANIL/SPIRAL2

Great opportunities in the coming years for an exciting physics program at GANIL/SPIRAL1/SPIRAL2 (including AGATA campaign 2014-2016, S3 and NFS)

The strongest possible support of the physics community and NuPECC in particular is essential to reach the goals!