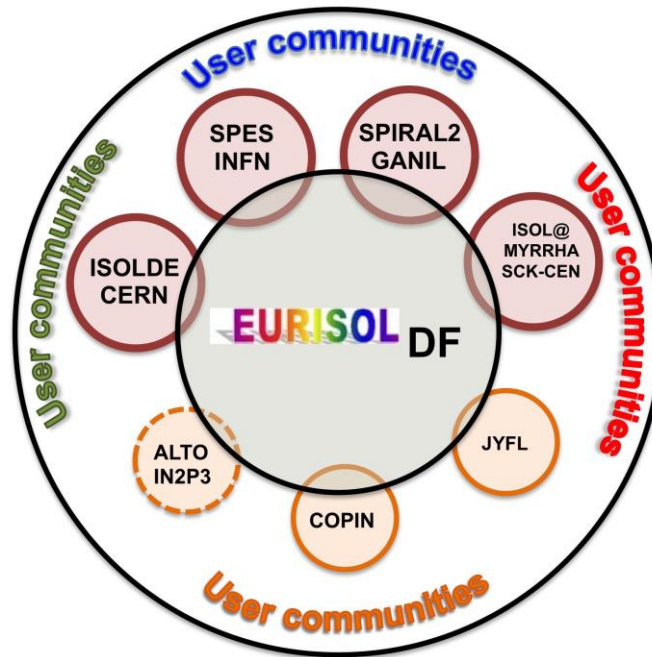


EURISOL – Distributed Facility (DF) Initiative

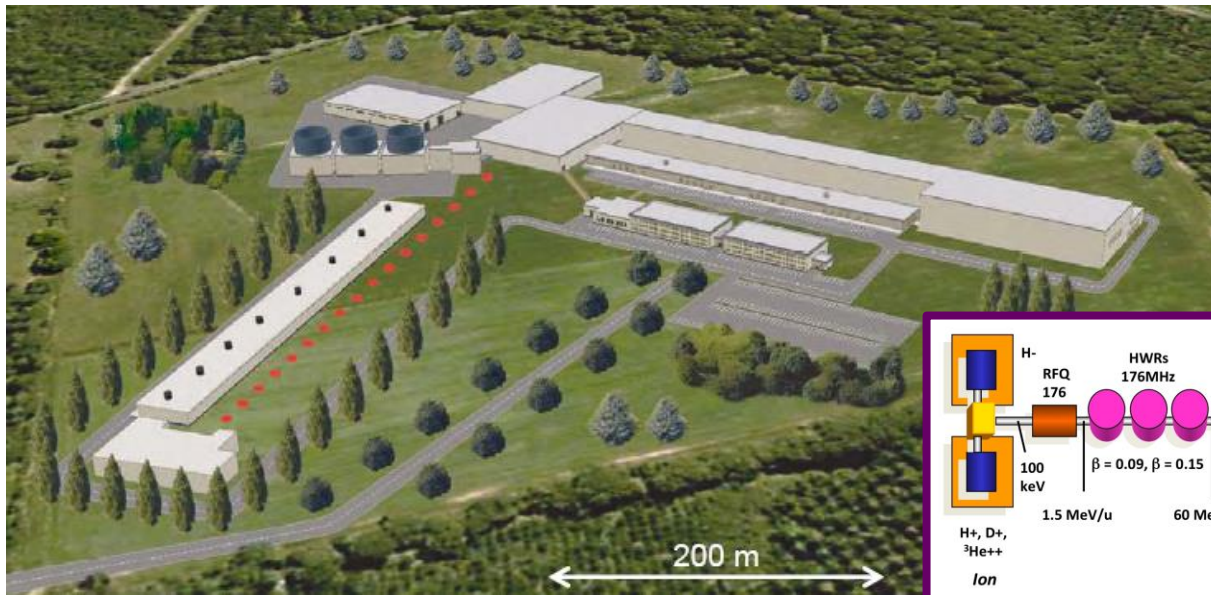
*M. Lewitowicz
for the EURISOL Steering Committee*



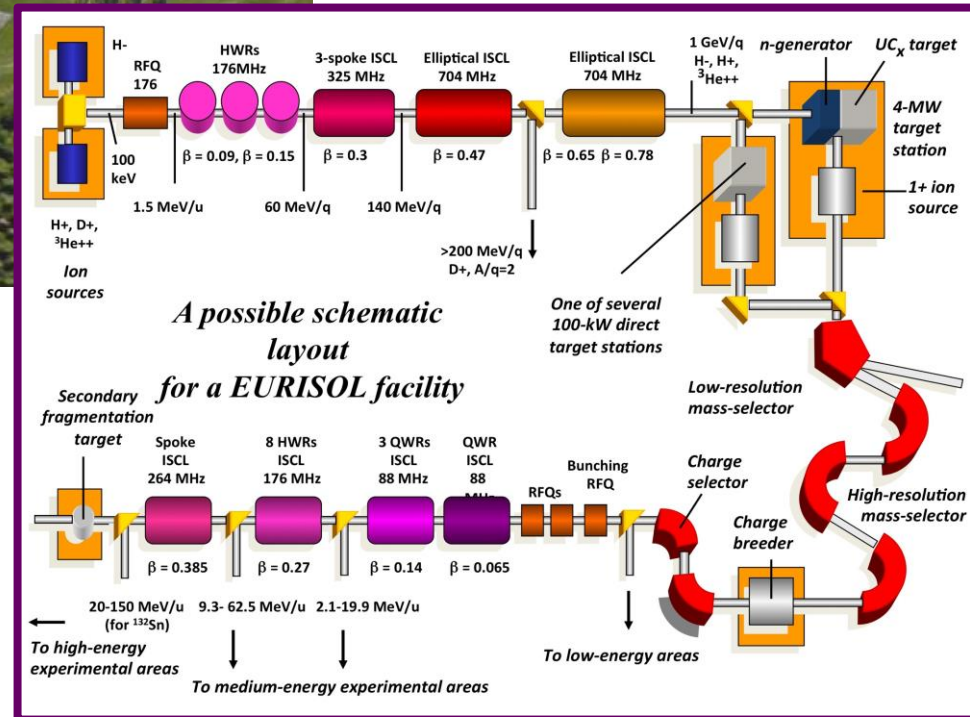
NuPECC Long Range Plan 2017, Town Meeting

In 2010 LRP **EURISOL** endorsed by NuPECC as the highest long term priority for low energy nuclear physics in Europe

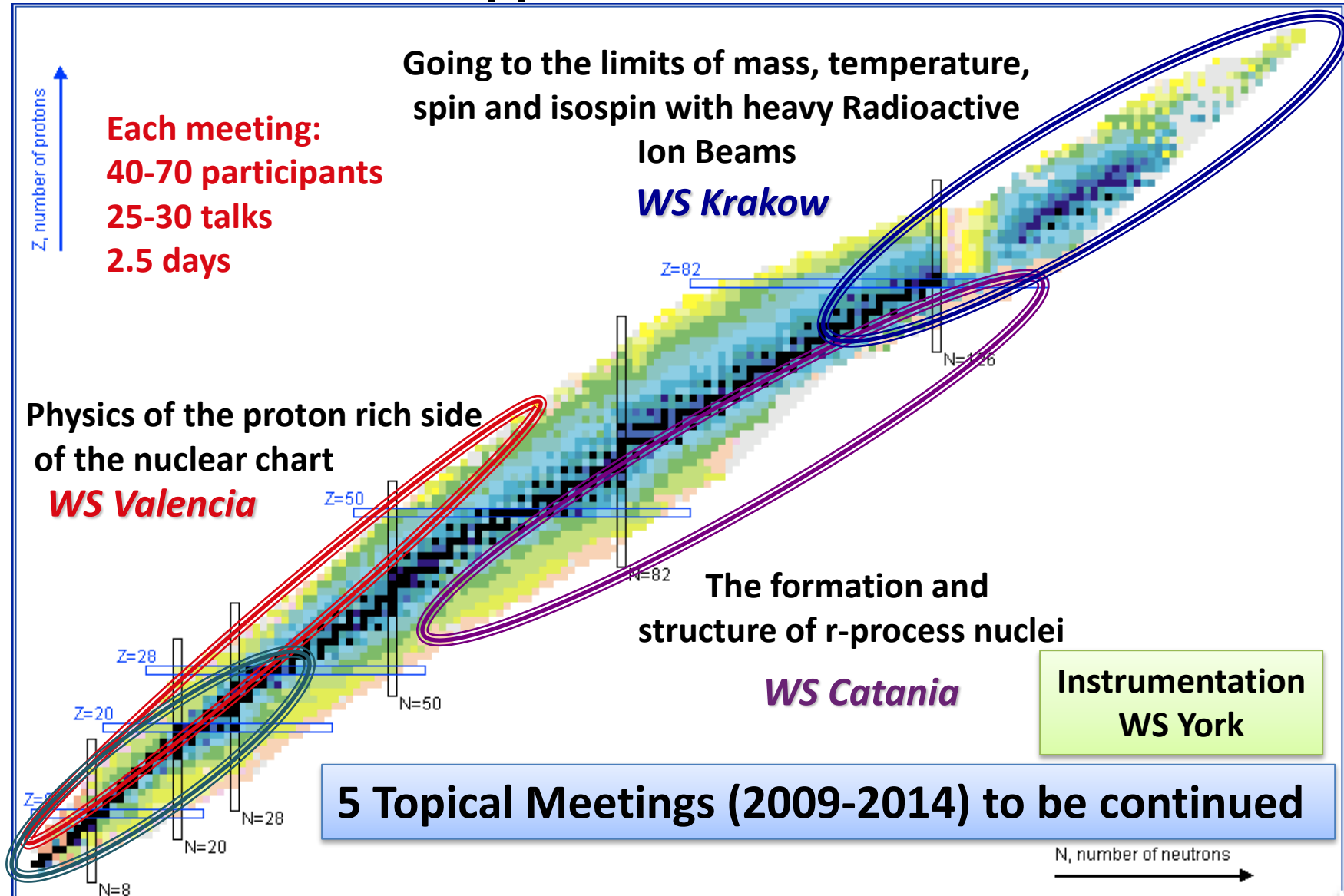
Facility as defined in the 2005-2009 EU funded Design Study



>1 B€



Strong scientific case for RIB science and applications



Each meeting:
40-70 participants
25-30 talks
2.5 days

Going to the limits of mass, temperature, spin and isospin with heavy Radioactive Ion Beams
WS Krakow

Physics of the proton rich side of the nuclear chart
WS Valencia

The formation and structure of r-process nuclei
WS Catania

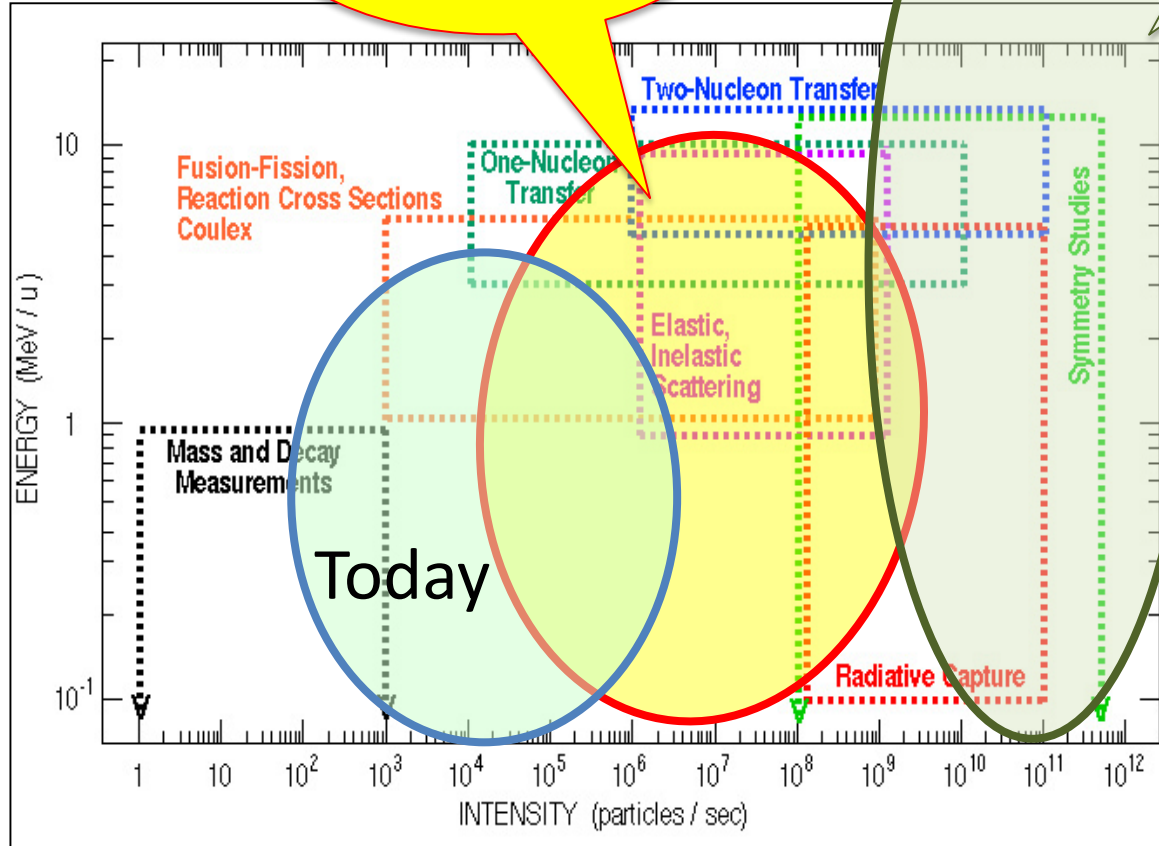
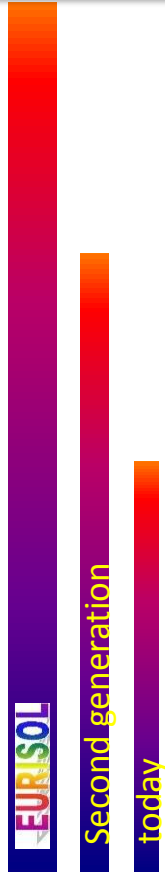
Instrumentation
WS York

5 Topical Meetings (2009-2014) to be continued

Physics light exotic nuclei
WS Lisbon

Physics with ISOL RIB
Intensity & Energy domains

Precision nuclear structure physics & applications



HIE-ISOLDE,
SPES, SPIRAL2,
ISOL@MYRRHA
EURISOL-DF

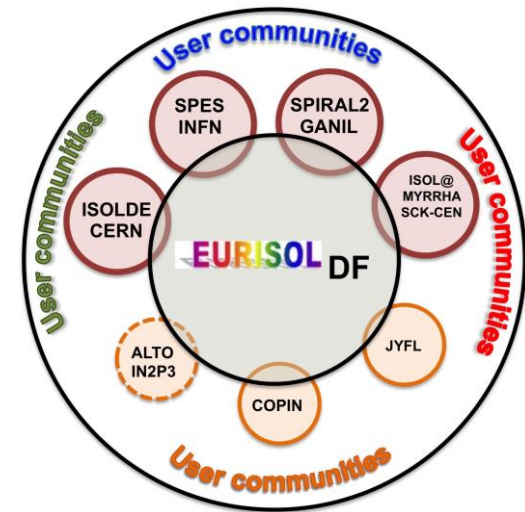
EURISOL



-> EURISOL-DF (Distributed Facility) Initiative from 2014 as an intermediate step towards EURISOL



EURISOL – Distributed Facility (DF)



Core members :

HIE-ISOLDE/CERN

SPES-INFN

SPIRAL2-GANIL

ISOL@MYRRHA-SCK*CEN

Associated Members

JYFL, Finland

**COPIN Consortium, Poland
(ALTO, Orsay)**

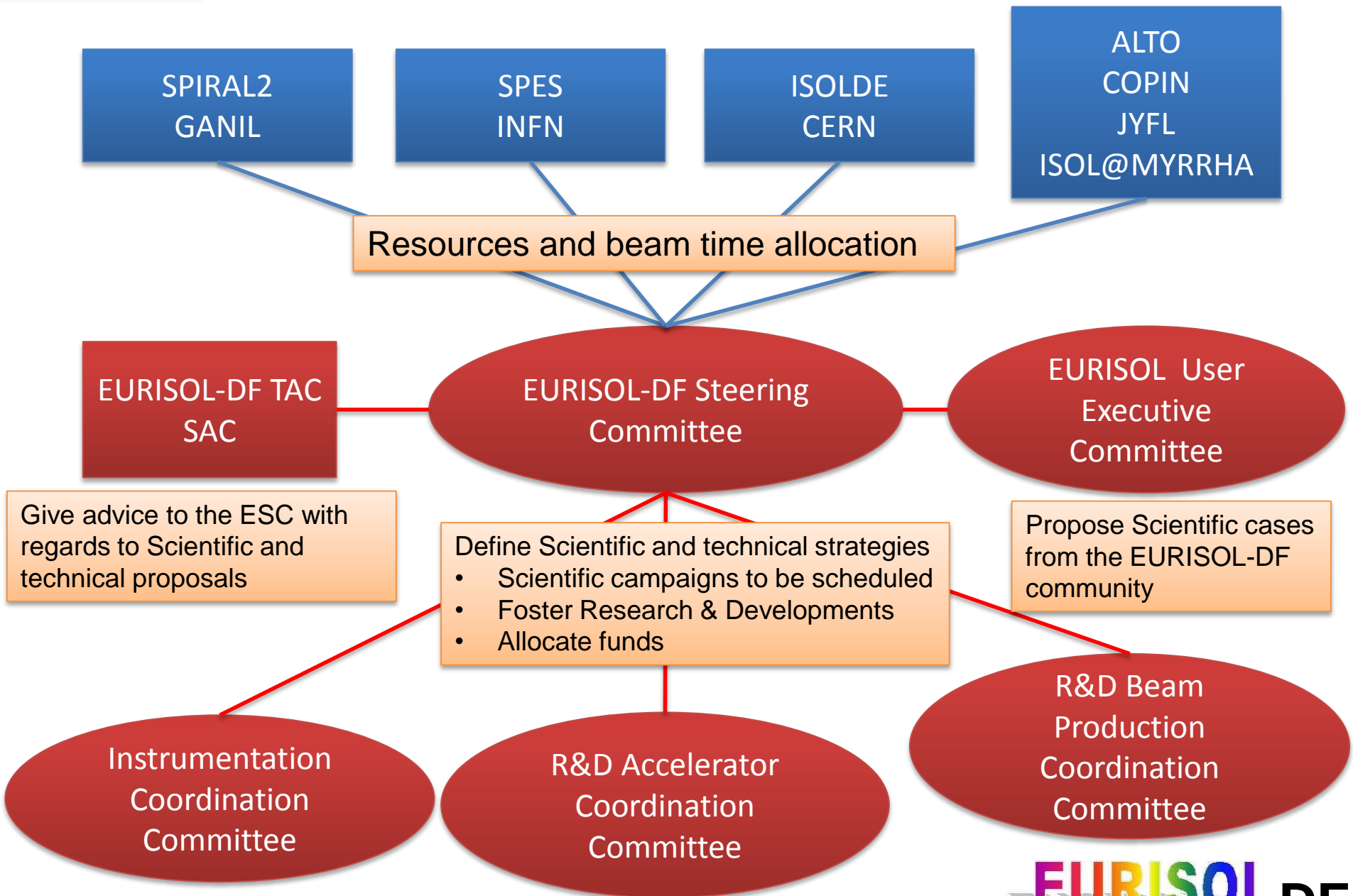
The goals of EURISOL-DF project (1/2)

- Implement a **new scientific policy** tackling major problems in nuclear physics at ISOL-based European facilities and in particular:
 - organise **experimental campaigns** using all available observables, techniques, facilities and theoretical approaches to answer key questions in nuclear structure (eg. modifications of magic numbers in nuclei far from stability) and astrophysics (eg. genesis of middle to heavy mass elements in the Universe) ;
 - have a single entry point for a **significant fraction (up to 50%) of the Radioactive Ion beamtime** dedicated at ISOLDE-CERN, SPIRAL2-GANIL & SPES-INFN for the EURISOL-DF experiments and distributed via the EURISOL-DF Program Advisory Committee;
- Develop **R&D on RIB production and instrumentation** towards EURISOL and in particular:
 - organise and open to all EURISOL-DF members the R&D platforms to develop RIB (ex. ion sources, targets, separation techniques) and detector systems;

The goals of EURISOL-DF project (2/2)

- Promote **user driven policy** with an important role played by the EURISOL User Group and the EURISOL Instrumentation Coordination Committee in order to organise and optimize the campaigns of travelling detectors and arrays;
- Have **EURISOL-DF included on the ESFRI list by 2018** and attract additional member states and EU funds, in particular:
 - in-kind and/or cash contributions of the members for joint developments for EURISOL in the domains of accelerators, RIB production and instrumentation for experiments;
- Establish a **joint strategy in education and training in nuclear science** (eg. organising joint summer schools, hands on training, topical workshops and conferences);
- Develop **EURISOL as a single site facility as a long-term goal.**

EURISOL-DF Organisation (Preliminary)



User driven policy: Example EICC

EURISOL-DF Instrumentation Coordination Committee (EICC)

The role of the EICC is to reinforce the synergies and coordinate efforts between the facilities and the major collaborations on existing and new detectors in order to carry on **R&D** and to **reach construction milestones** and **coordinate experimental campaigns** at all RIB facilities which are members of EURISOL-DF.

Traveling detectors (examples)

Gamma-ray detectors

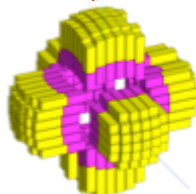


AGATA

EXOAM 2

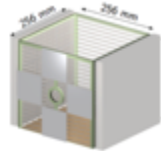


PARIS



Charged particle detectors

ACTAR-TPC



GASPARD

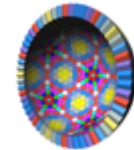


FAZIA



Neutron detectors

NEDA



DEMON

EURISOL – Distributed Facility (DF) Initiative – next steps

- *EPS Conference dedicated to EURISOL-DF in October 18-21, 2016*
- *Update by the EURISOL SC of the EURISOL-DF description in the NuPECC LRP by the end of 2016*
- **Draft of the full EURISOL-DF proposal including the feed-back from the Leuven conference by the end of February 2017**
- Consultation of the draft with the involved countries and community with an involvement of the EURISOL User Executive Committee: **March-July 2017**
- **Submission of the EURISOL-DF project to ESFRI by July 2017**



Conclusion

EURISOL-DF Pan-European added value:

- Optimal approach to study major questions in modern nuclear structure physics, nuclear astrophysics and related applications
- European coordination of EURISOL related physics and technical R&D
- Secured resources for operation of the ISOL facilities and additional resources for R&D and detectors
- Clear strategy for upgrades of the EU ISOL facilities towards EURISOL

Strong support for the EURISOL-DF project from the nuclear structure, dynamics and astrophysics - WG3 and WG4