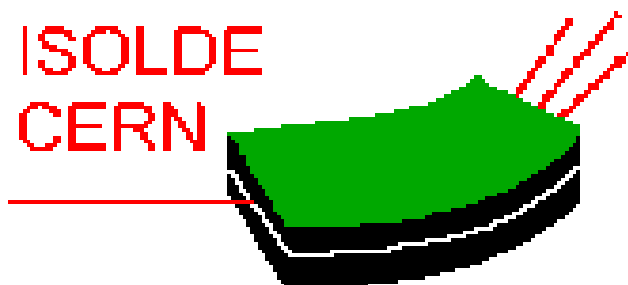
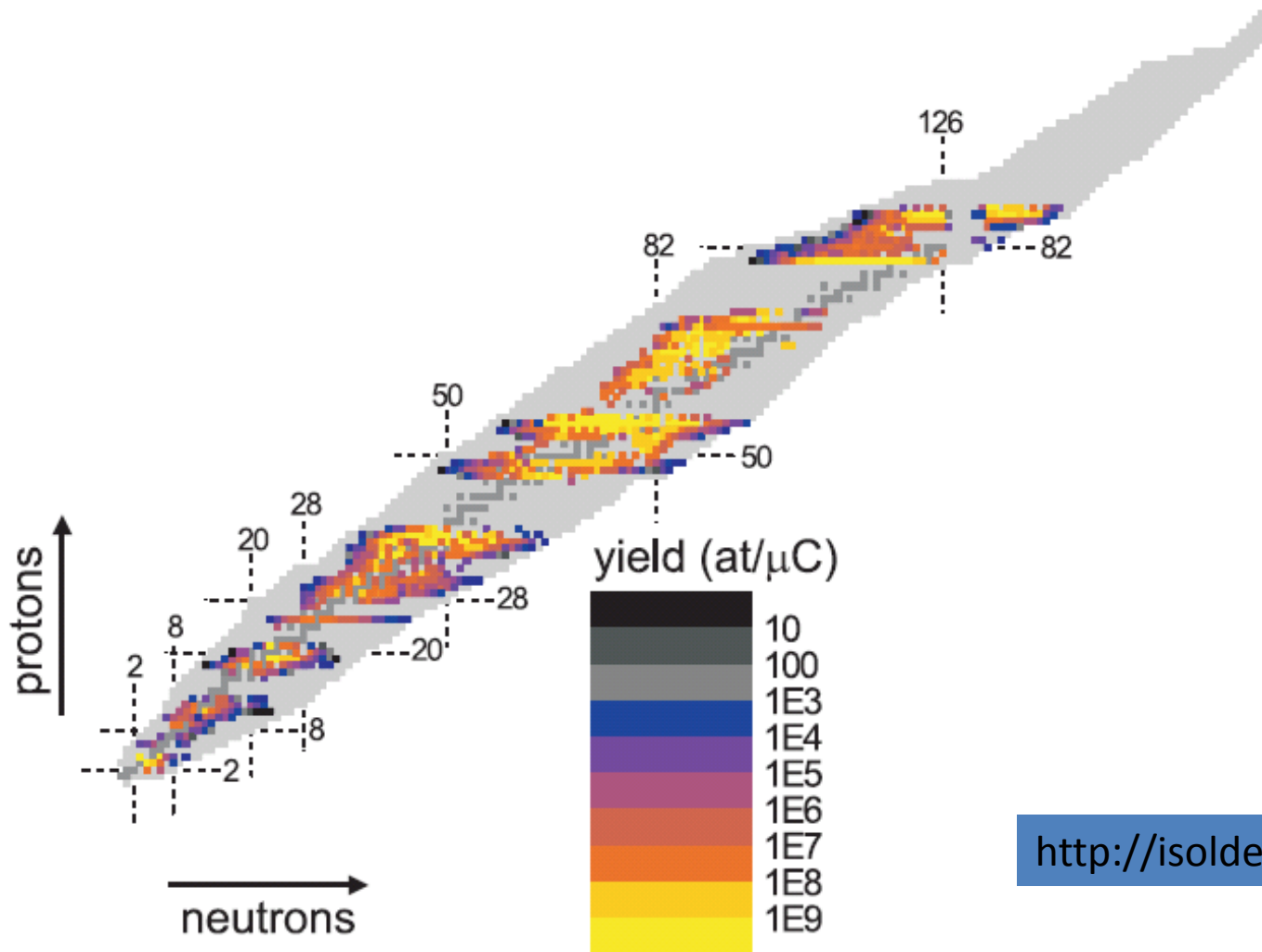


# Introduction to HIE-ISOLDE



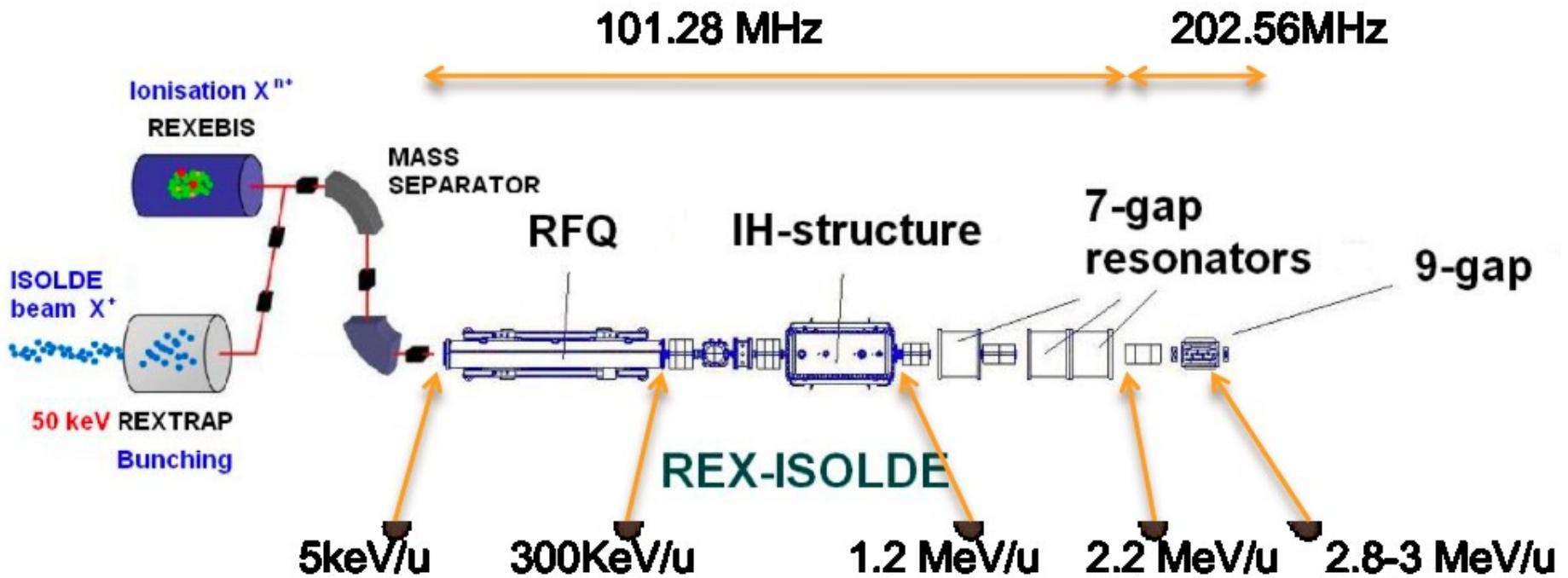
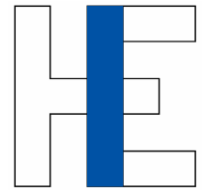
ISOLDE today offers the largest range of available isotopes of any ISOL facility worldwide.



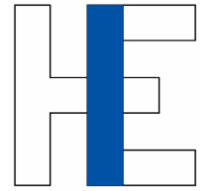
<http://isolde.web.cern.ch/ISOLDE/>

So far >600 radioactive isotopes of >60 elements

# REX-ISOLDE Post accelerator



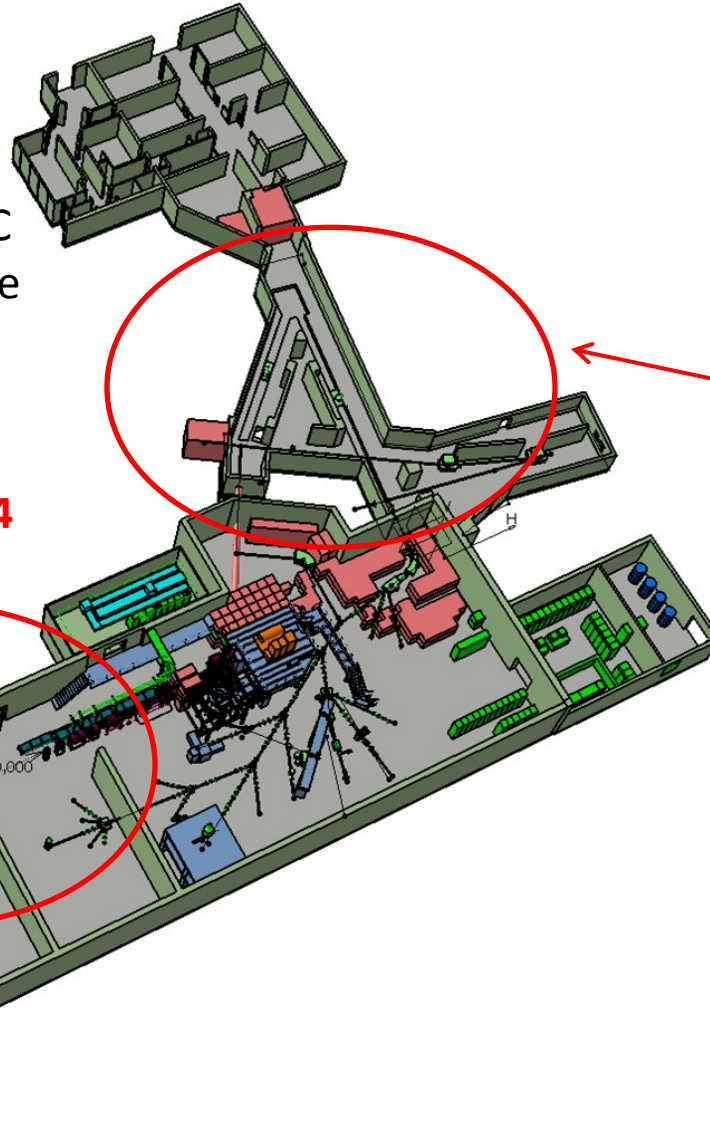
# Scope of HIE-ISOLDE



HIE-ISOLDE aims at increasing the energy of these RIB up to 10A MeV and their intensity by a factor 10

## Energy Upgrade:

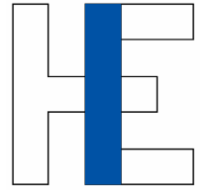
The HIE-ISOLDE project concentrates on the construction of the SC LINAC and associated infrastructure in order to upgrade the energy of the post-accelerated radioactive ion beams to **5.5 MeV/u in 2014** and **10 MeV/u by 2016**



## Intensity Upgrade:

The design study for the intensity upgrade, also part of HIE-ISOLDE, starts in 2011, and addresses the technical feasibility and cost estimate for operating the facility at **10 kW** once LINAC4 and PS Booster are online.

# A Brief History



- The need of an upgraded ISOLDE facility was established in the NuPAC meeting in October **2005**
- The HIE-ISOLDE proposal was first presented to the Research Board in June **2006**.
- **2006-2007**: Yellow papers published
- The proposal was favorably reviewed by the SPC in **2007** and formed part of the Projects for which CERN requested an important external contribution
- An R&D programme was set up in **2008** (3.0 MEuro entirely funded from outside CERN -> Belgian contribution + 10 FTE) for starting the overall study and the R&D on superconducting high-beta cavities.
- Following the workshop on the broadening of the physics landscape at CERN, which took place in **May 2009**, the Research Board in its **December 2009** session approved the project.
- **Beginning 2010** a project structure and budget structure was put in place and Yacine Kadi was named project leader and Matteo Pasini technical coordinator.

# Timeline

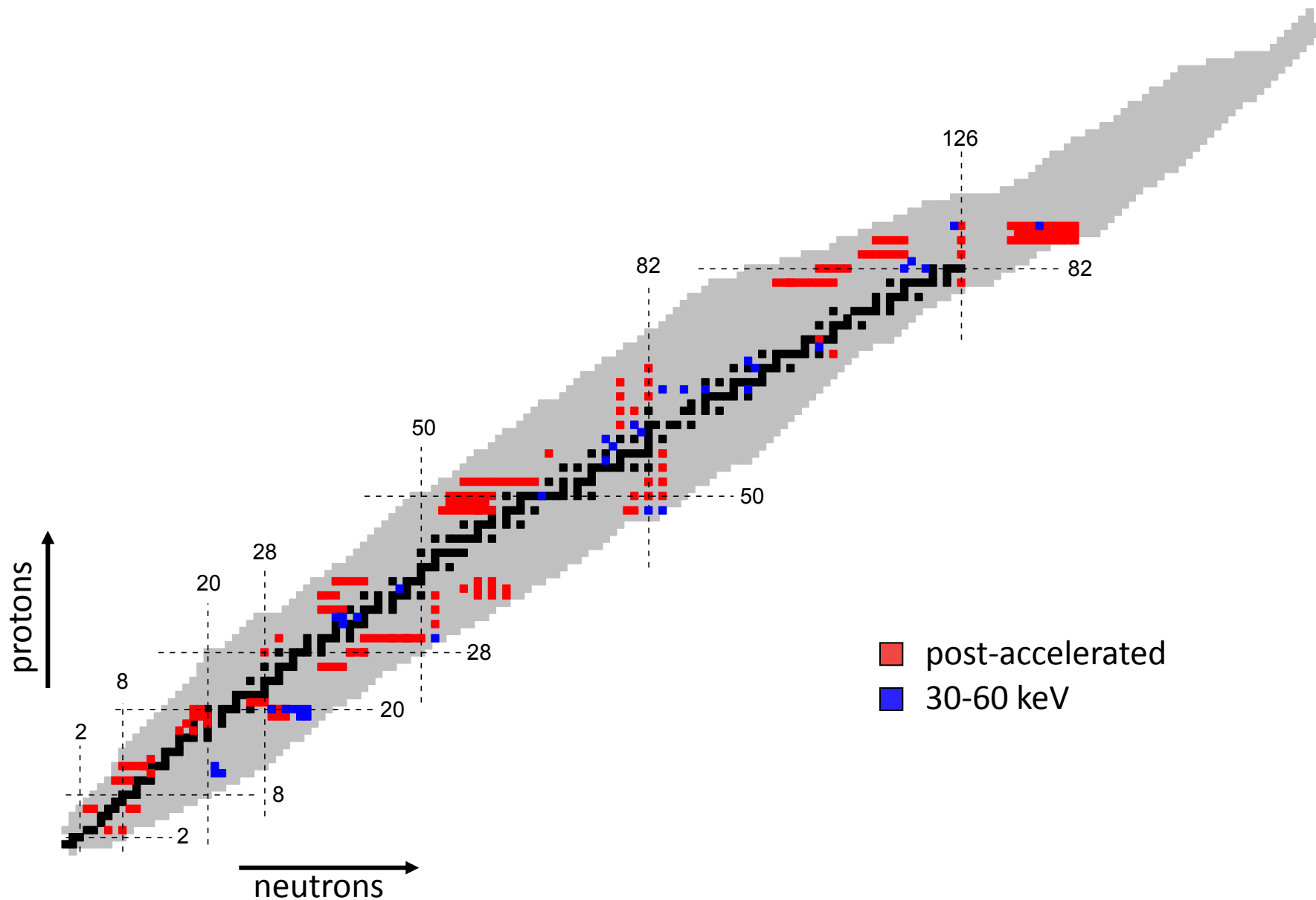
- 2013: CERN shutdown(?); start of installation of LINAC
- 2014: commissioning and begin physics at 5.5 MeV
- 2015: Physics at 5.5A MeV
- 2016: CERN shutdown (LINAC4); finalize installation of LINAC and beamlines
- 2017 >: Physics at 10A MeV

# Call for Letters of Intent

(deadline May 21)

- 34 Letters submitted
- 284 Participants from 76 Laboratories in 22 Countries
- 30 LOIs make use of the Energy and Intensity increases; 4 of the intensity upgrade only
- Major mechanisms are Coulex (13) and transfer(16); elastic scattering(3); fission(2)
- (3) letters concern masses and moments; (4) astrophysics and (5) major new instrumentation
- Major subjects: Nuclear shapes ; Shell evolution; Halo properties; Nuclear astrophysics

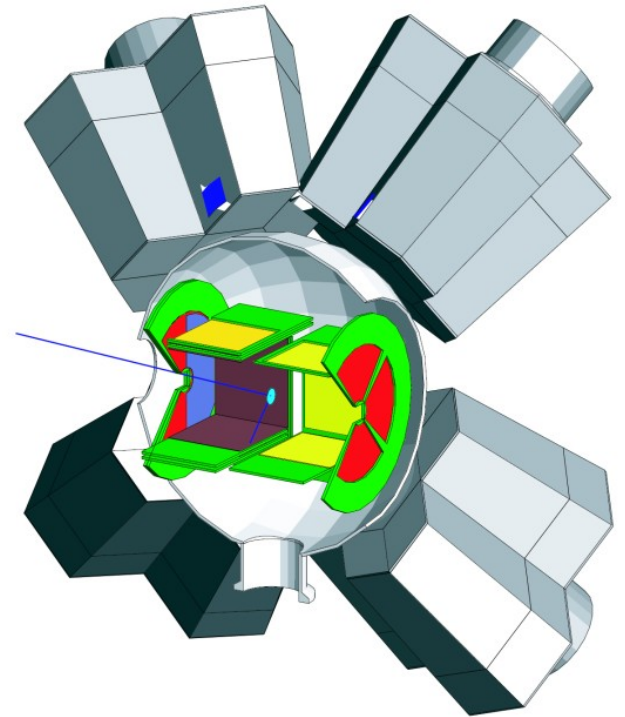
# Radioactive isotopes requested in HIE-ISOLDE Letters of Intent





# Main Instruments

- Miniball + T-REX
  - Requested by 18 LOIs
  - Beam energy : 5A MeV for COULEX, 10A MeV for transfer
  - 9 LOIs need or would benefit from coupling with **spectrometer**.
- Other Instruments: ACTAR, PARIS, GASPARD, HELIOS:  
Collaboration with SPIRAL2



# Main Aims of the Workshop

- Discuss the advantages (and drawbacks?) of having a spectrometer for reaction work with RIBs; discuss alternatives
- Compare the qualities of recoil separators with ray-tracing spectrometers
- Assess the support in the community for having such a device at HIE-ISOLDE
- Constitute working groups to move the project forward.