

# Identified Applications for the ISOL@MYRRHA Facility in Phase 1

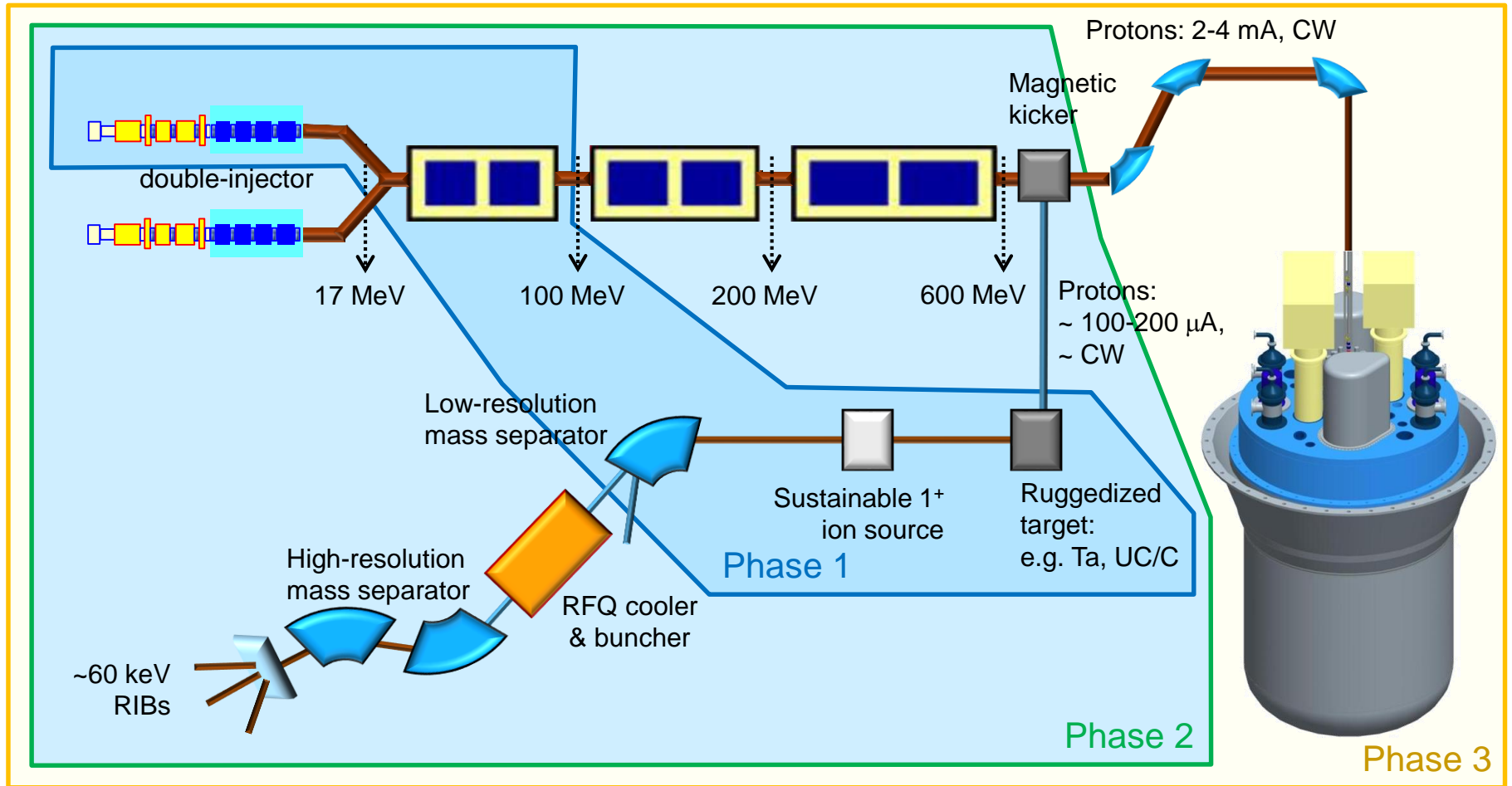
I. Cherednikov, M. Ashford, P. Brunier, P. Creemers, M. Dierckx,  
L. Ghys, M. Griseri, D. Hougbo, L. Popescu, K. Rijpstra  
and BriX Collaboration



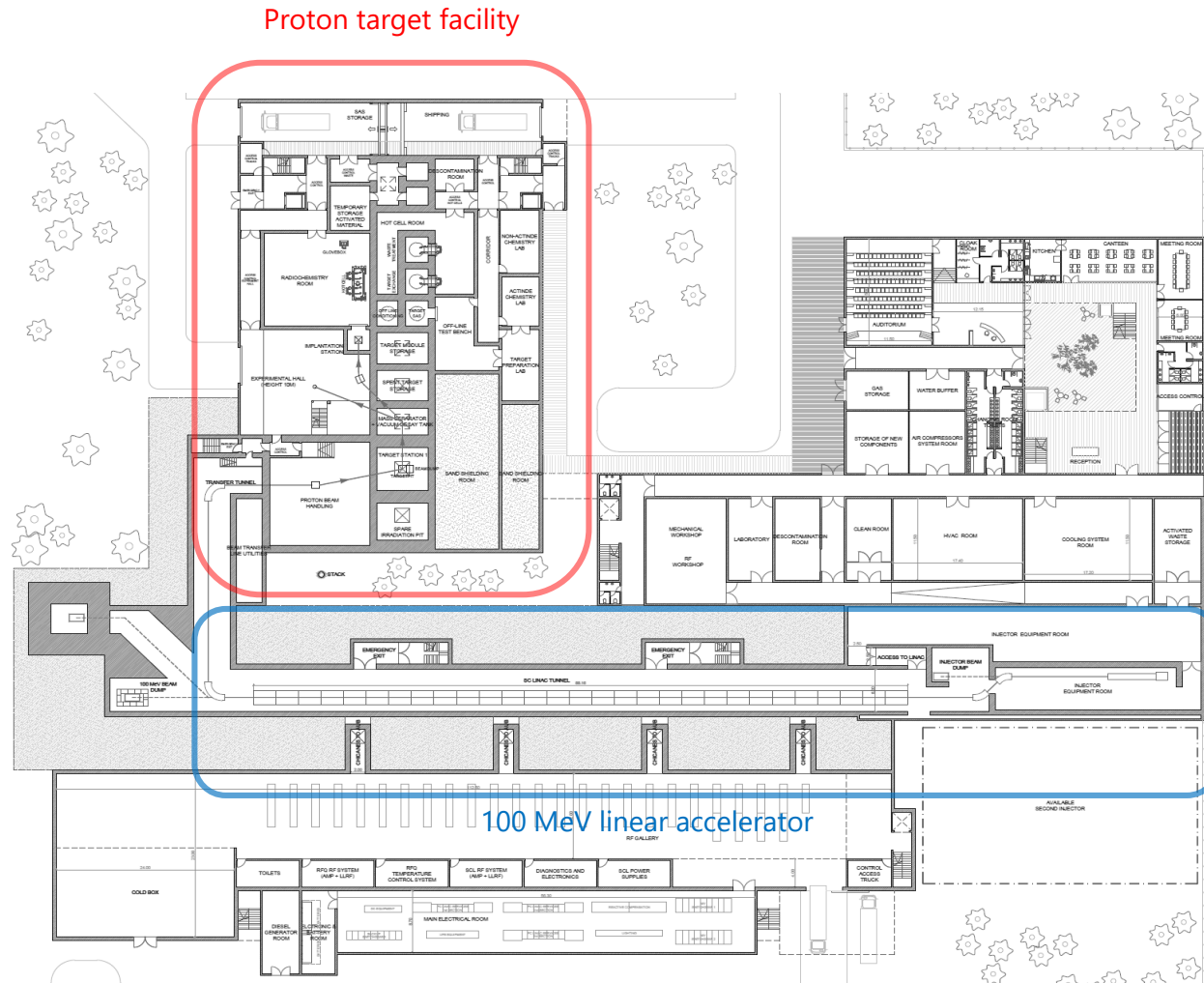
STUDIECENTRUM VOOR KERNENERGIE  
CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE

# The MYRRHA programme

- Phase 1 (2016-2024): 100-MeV accelerator + ISOL Target Station



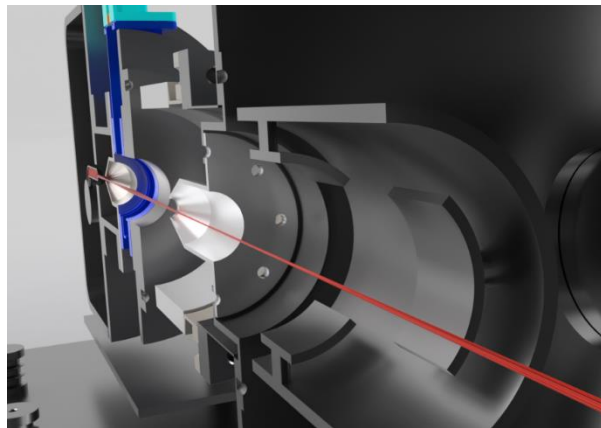
# MYRRHA phase 1 (2016 – 2024): coupling the 100-MeV LINAC to an ISOL target station



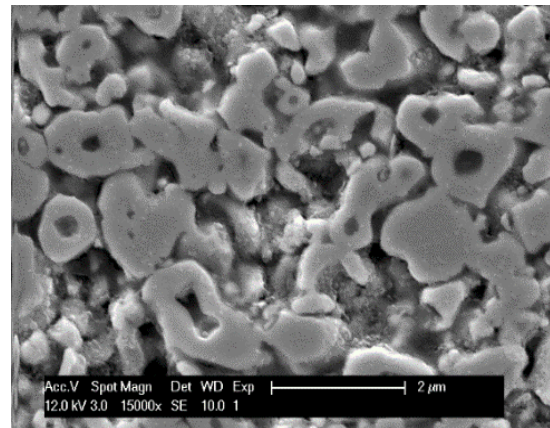
J. Engelen, M. Gomez, J. Habraken, K. Nickel (SCK•CEN)

# Technical-development opportunities

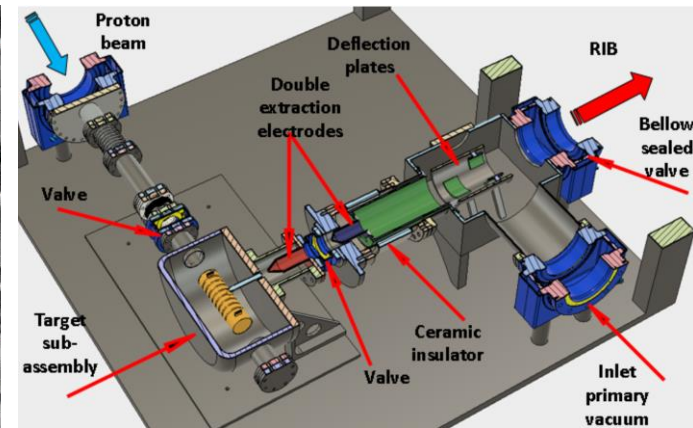
- Unique facility that provides CW proton-beams up to 4 mA which makes it ideal for development and testing of high-power ISOL technology, e.g.:
  - Testing high intensity ion source & optimized RIB-extraction optics
  - Testing new target materials for long term & high-power operation



P. Creemers, K. Rijpstra (SCK•CEN)



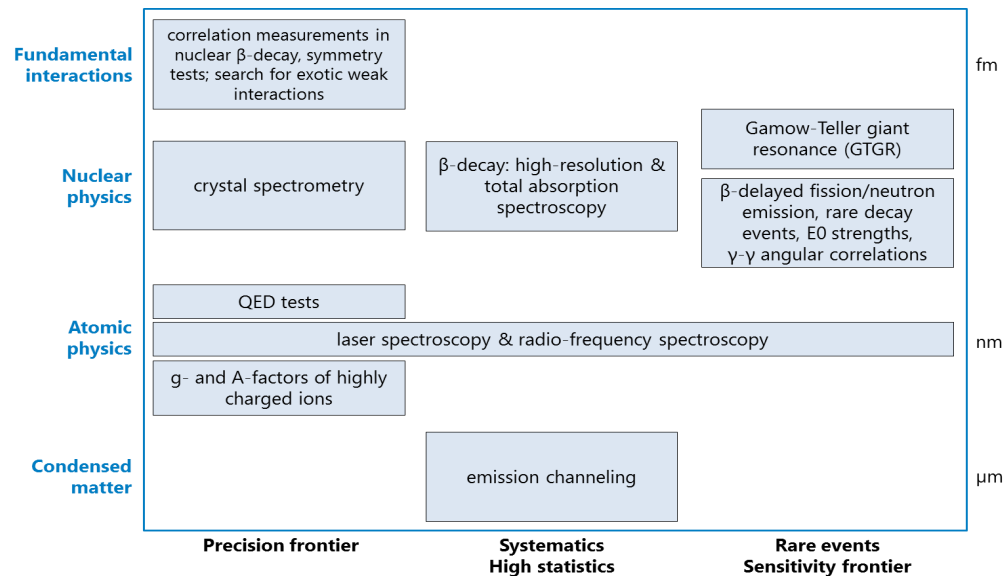
M. Griseri (SCK•CEN, KU Leuven)



P. Creemers (SCK•CEN)

# Physics opportunities

- Physics cases identified through a series of topical workshops organized within the Belgium research initiative on eXotic nuclei project (BriX)
- Focus on experiments demanding long measurement time, high precision and high statistics, available in the 100-MeV phase of ISOL@MYRRHA

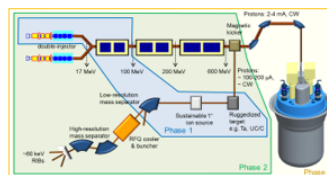


## Identified Applications for the ISOL@MYRRHA Facility in Phase 1

I. Cherednikov, M. Ashford, P. Brunier, P. Creemers, M. Dierckx, L. Ghys, M. Grisen, D. Houngho, L. Popescu, K. Rijstra and BriX Collaborators  
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### The MYRRHA programme

- MYRRHA: an Accelerator Driven System (ADS) consisting of a proton accelerator coupled to a liquid lead-bismuth eutectic spallation neutron source feeding a sub-critical reactor
- The MYRRHA accelerator will provide high-intensity proton beams of 600 MeV and intensities up to 4 mA
- ISOL@MYRRHA: Isotope Separation On-Line system using a fraction of the MYRRHA proton beam sent to a target-ion source system to produce high intensity radioactive ion beams for extended periods of time

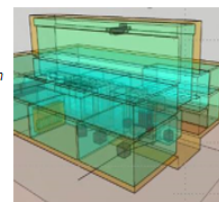


### MYRRHA phase 1 (2016 – 2024): coupling the 100-MeV LINAC to an ISOL target station



J. Engelen, M. Gomez, J. Habraken, K. Nikel (SCK-CEN)

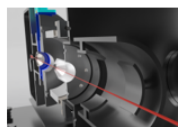
- **Proton Target Facility (ISOL target station)**  
 Concept under development at SCK-CEN and technical documentation under preparation for Design Engineering
- **Licensing activities & government evaluation**  
 Ongoing discussions with licensing authorities and providing the requested information to evaluation committee
- **RIB-production R&D activities**  
 Concepts under development for target, ion-source and front-end



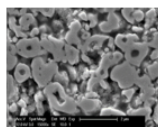
M. Dierckx (SCK-CEN)

### Technical-development opportunities

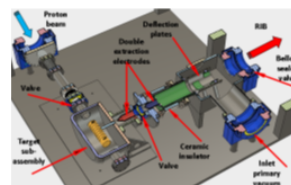
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P. Creemers, K. Rijstra (SCK-CEN)



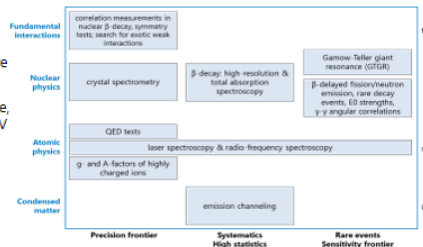
M. Grisen (SCK-CEN, KU Leuven)



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# Physics opportunities

