MYRRHA Project & Collaboration opportunities between ESS-ERIC & MYRRHA

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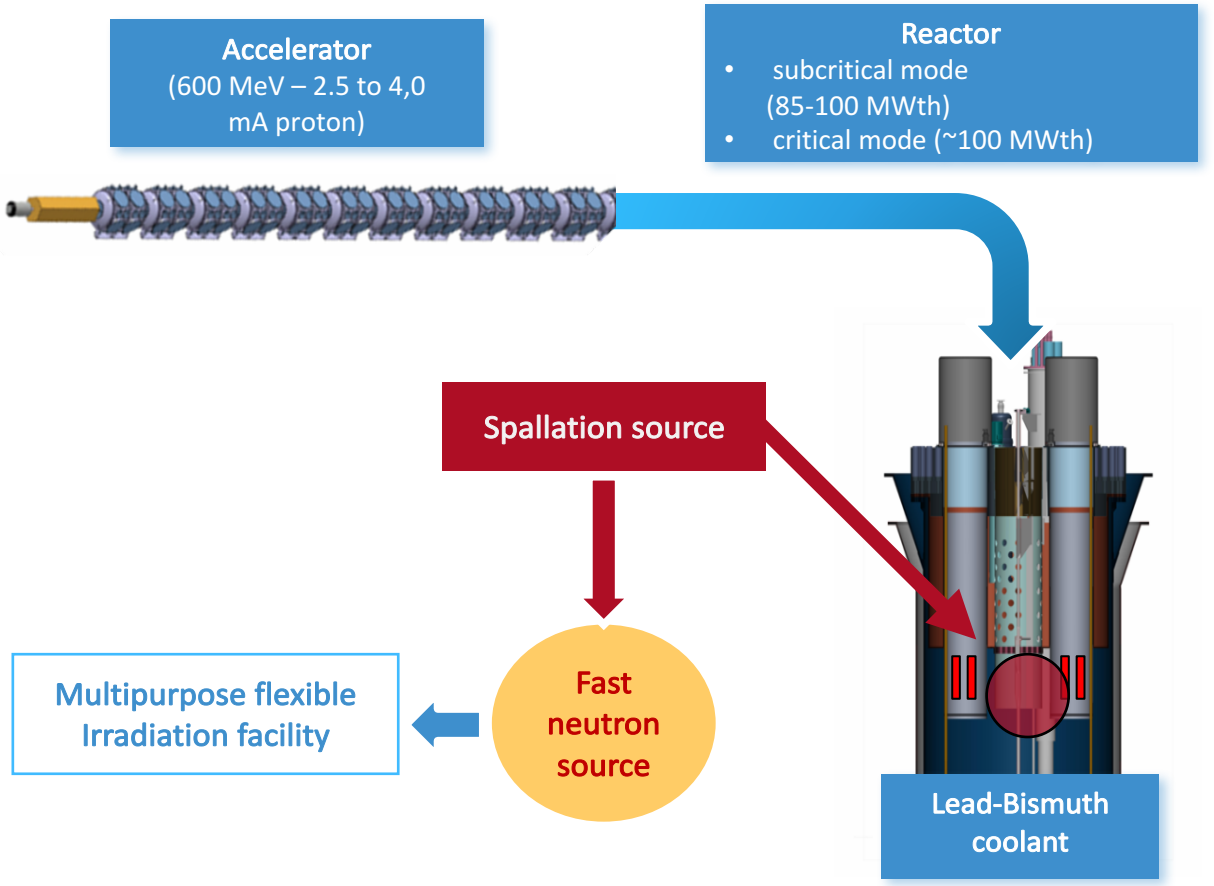
MYRRHA:
A jump in the future for pioneering innovation in Belgium
For sustainable nuclear applications in Europe

http://myrrha.sckcen.be & myrrha@sckcen.be

Key technical objective of the MYRRHA-project: an Accelerator Driven System

Construction of an Accelerator-Driven System (ADS) consisting of

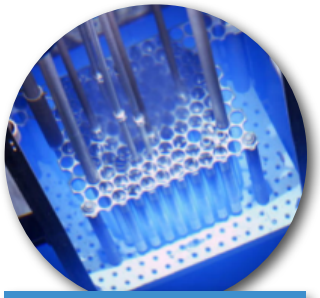
- A 600 MeV – 2,5 mA to 4,0 mA proton linear accelerator
- A spallation target/source
- A Lead-Bismuth Eutectic cooled reactor able to operate in subcritical & critical mode



Source: SCK•CEN MYRRHA Project Team

MYRRHA application portfolio

Multipurpose
hYbrid
Research
Reactor for
High-tech
Applications



Fission GEN IV

Fusion

Fundamental research

SNF*/ Waste

Radio-isotopes

SMR LFR

*SNF = Spent Nuclear Fuel

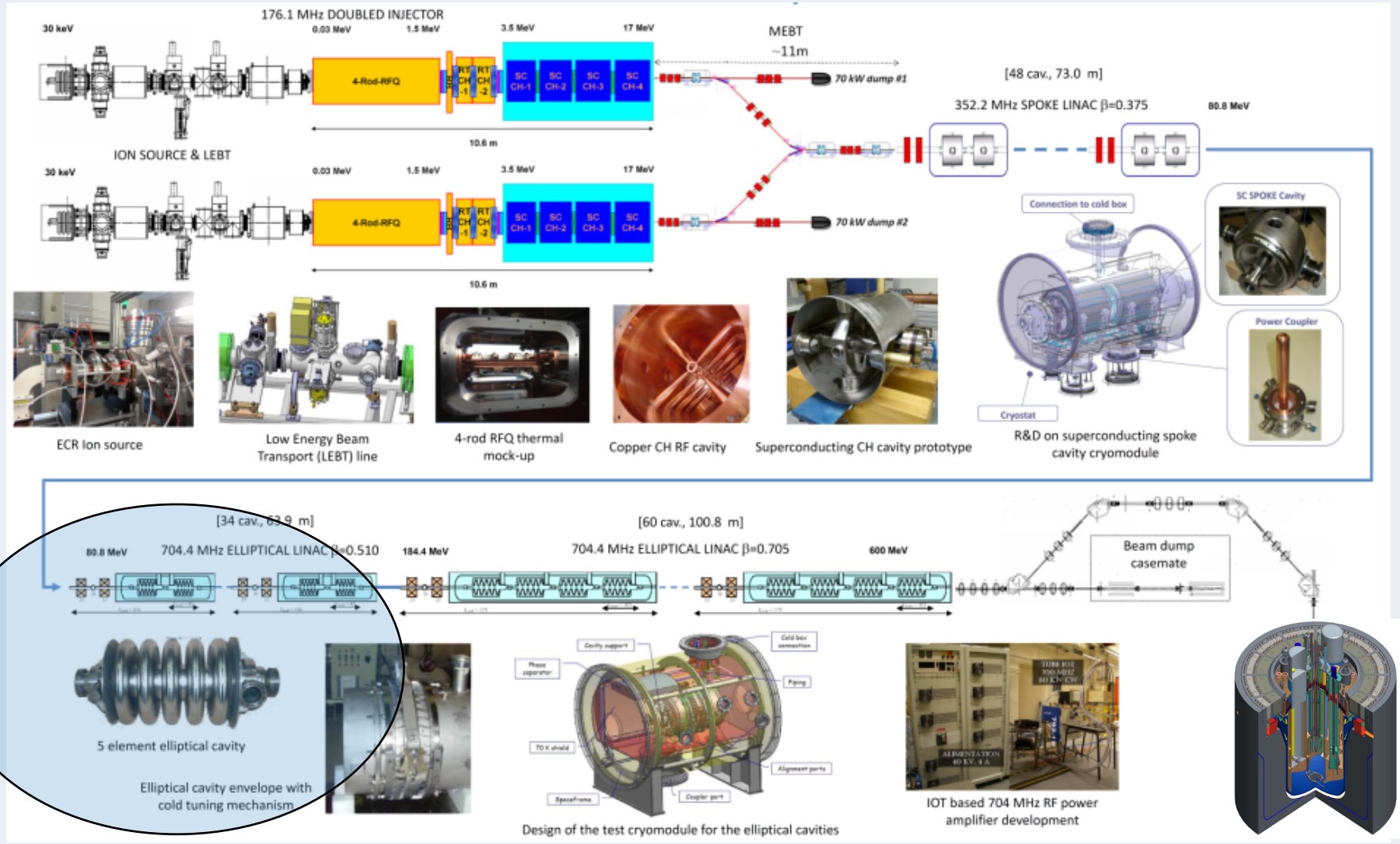
Towards cross-participation between ESS-ERIC and MYRRHA

- SCK•CEN was appointed by the Belgian Science Policy to represent Belgium in the ESS-ERIC Governing Board
- Belgium has the temporary status of Observer within ESS-ERIC
- ESS-ERIC seeks full membership of Belgium
- Belgium seeks membership of Sweden in the MYRRHA project
- SCK•CEN and ESS-ERIC look within their respective countries for reciprocal funding in the two projects: in-kind, in-cash
- Collaboration between the two projects exists through European projects and aims to evolve towards bilateral agreements
- Large synergies and complementarities exist between MYRRHA and ESS-ERIC

MYRRHA and ESS-ERIC have synergy and complementarity

- High reliability of High Power Proton Accelerator (driven by MYRRHA)
- Intermediate energy (100 to 200 MeV) accelerator section of MYRRHA can be based on ESS accelerator design (driven by ESS-ERIC)
- Solid state RF amplifiers development (aimed by both)
- Material properties assessment of W for ESS solid target based on BR2 & Post-Irradiation Examination in well equipped SCK•CEN hot-labs (driven by SCK•CEN)
- RIB Physics (ESS-ERIC and ISOL@MYRRHA)

Example: MYRRHA & ESS – LINAC fields of co-development



The 100 to 200 MeV part of the accelerator of MYRRHA (medium b Nb cavities) can be replaced by the double-spoke cavities presently under development for ESS

Task Force MYRRHA-ESS-Oskarshamn
Working for a win³ collaboration

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Studiecentrum voor Kernenergie
Centre d'Etude de l'Energie Nucléaire
Belgian Nuclear Research Centre

Stichting van Openbaar Nut
Fondation d'Utilité Publique
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