

***Brainstorming discussion: Interests and priorities
for collaboration on accelerator R&D***

2017 Joint Workshop of the France-Korea (FKPPL) and
France-Japan (TYL/FJPPL) Particle Physics Laboratories
IPHC, Strasbourg, France, May 10-12, 2017

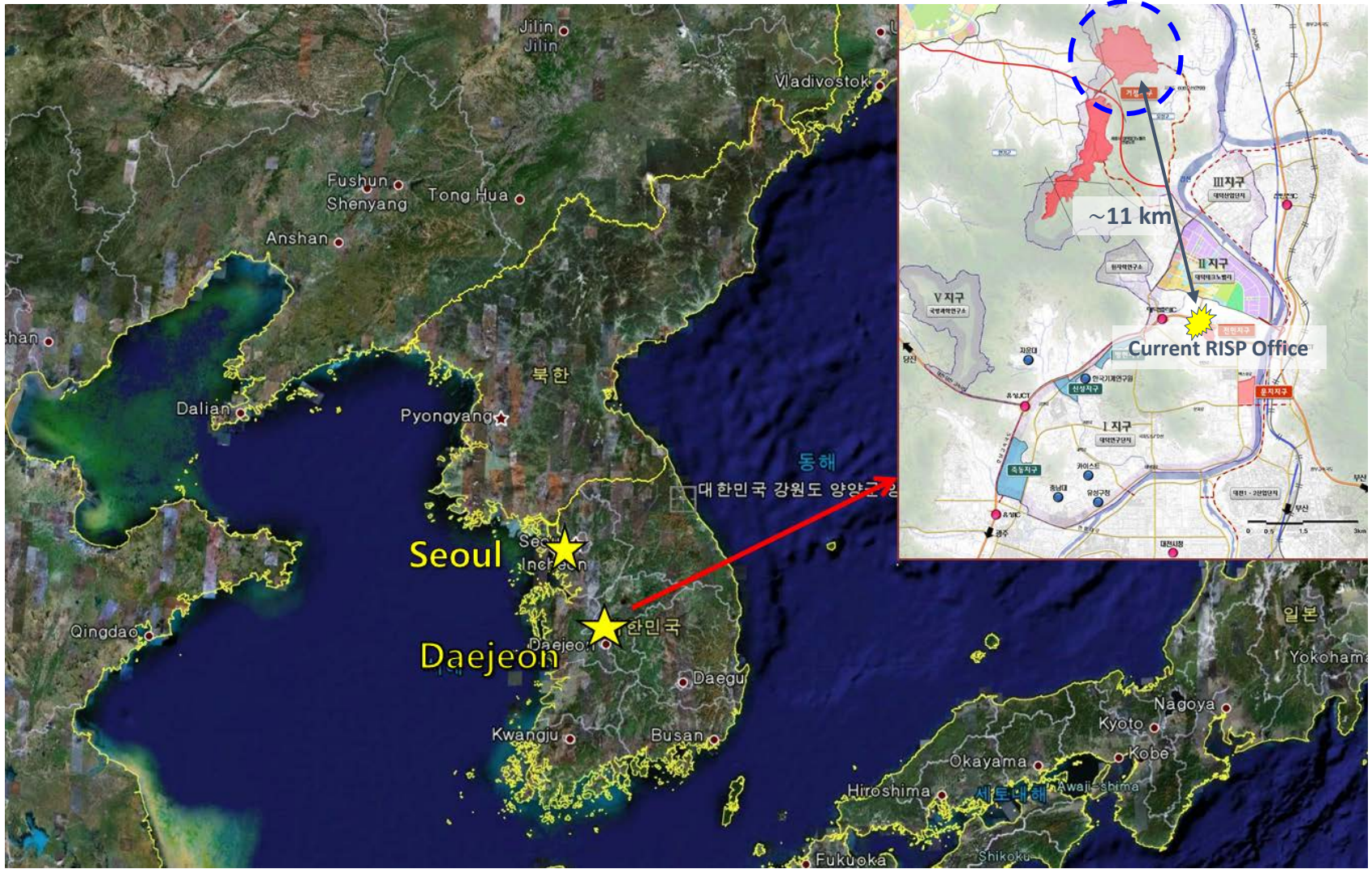
Introduction to the RAON project in Korea

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Rare Isotope Science Project (RISP)

- Goal: To build the heavy ion accelerator complex **RAON** for rare isotope science research
- Budget: Total ~U\$ 1.43 B
 - Facilities: ~U\$ 460 M
 - Buildings and utilities: ~U\$ 970 M
- Period: December 2011 – December 2021
- Brief history
 - 2009.01: International Science Business Belt Plan
 - 2011.02: Conceptual Design Report
 - 2011.12: RISP launched
 - 2012.06: Baseline Design Summary & Technical Design Report
 - 2014.12: Civil engineering & construction project of RISP launched
 - 2015.05: 2nd amendment of the basis plan

Location of RAON Complex



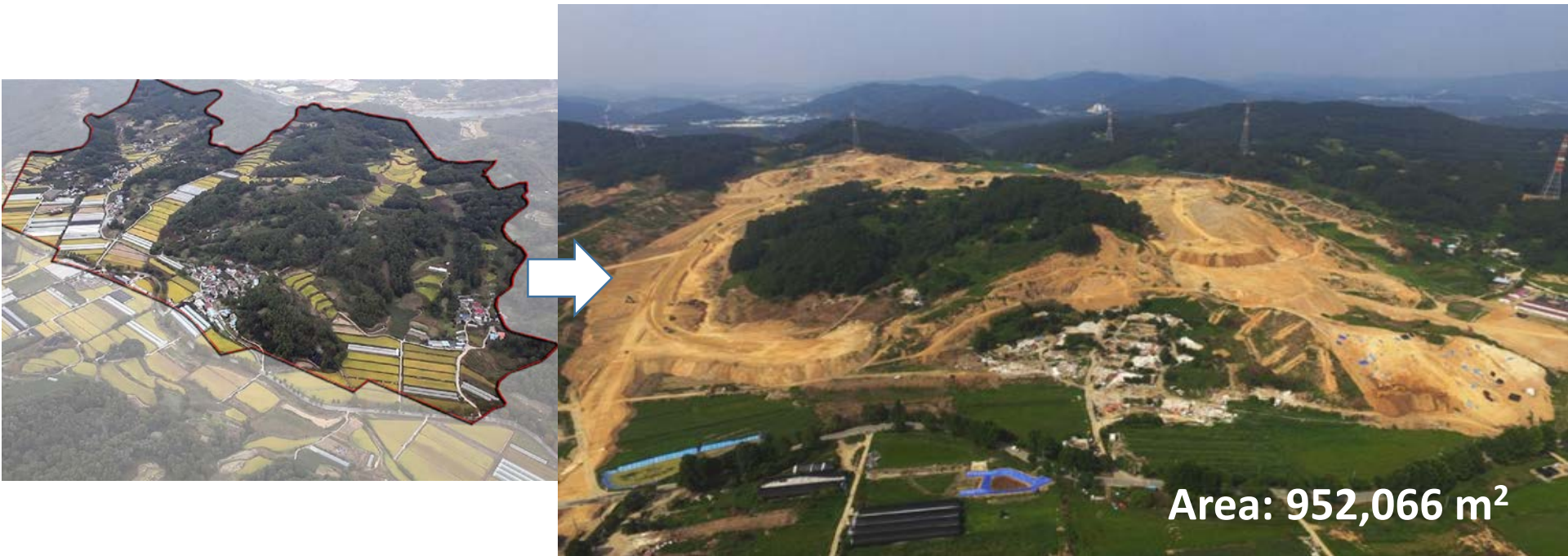
Site Plan

Bird's eye view



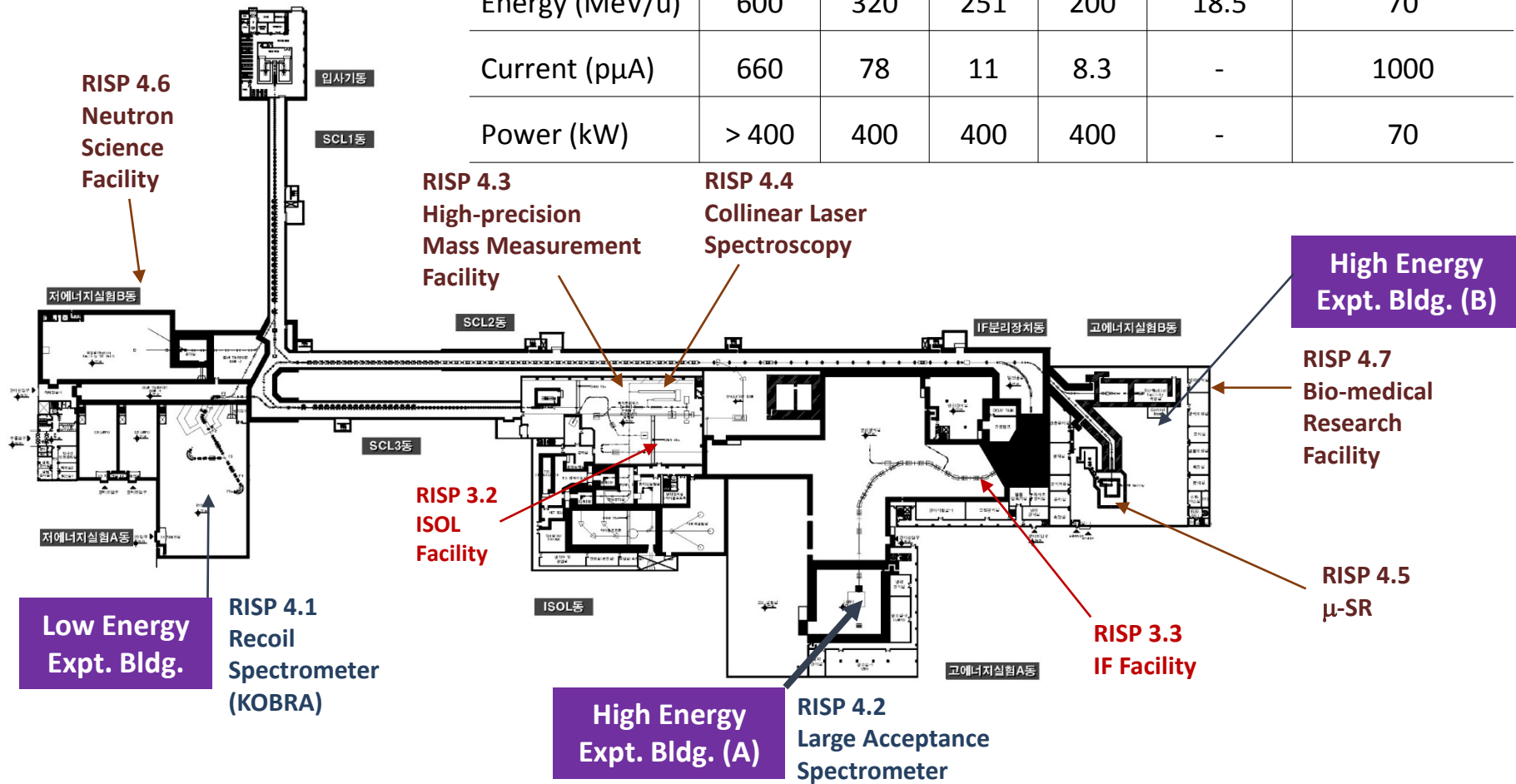
Site Preparation

- The construction and civil engineering for RAON (Rare isotope Accelerator complex for ON-line experiments) has begun.
- The ground breaking for accelerators and experimental buildings was done on Feb. 13th this year. A full scale ground breaking ceremony is scheduled in either July or August, 2017.

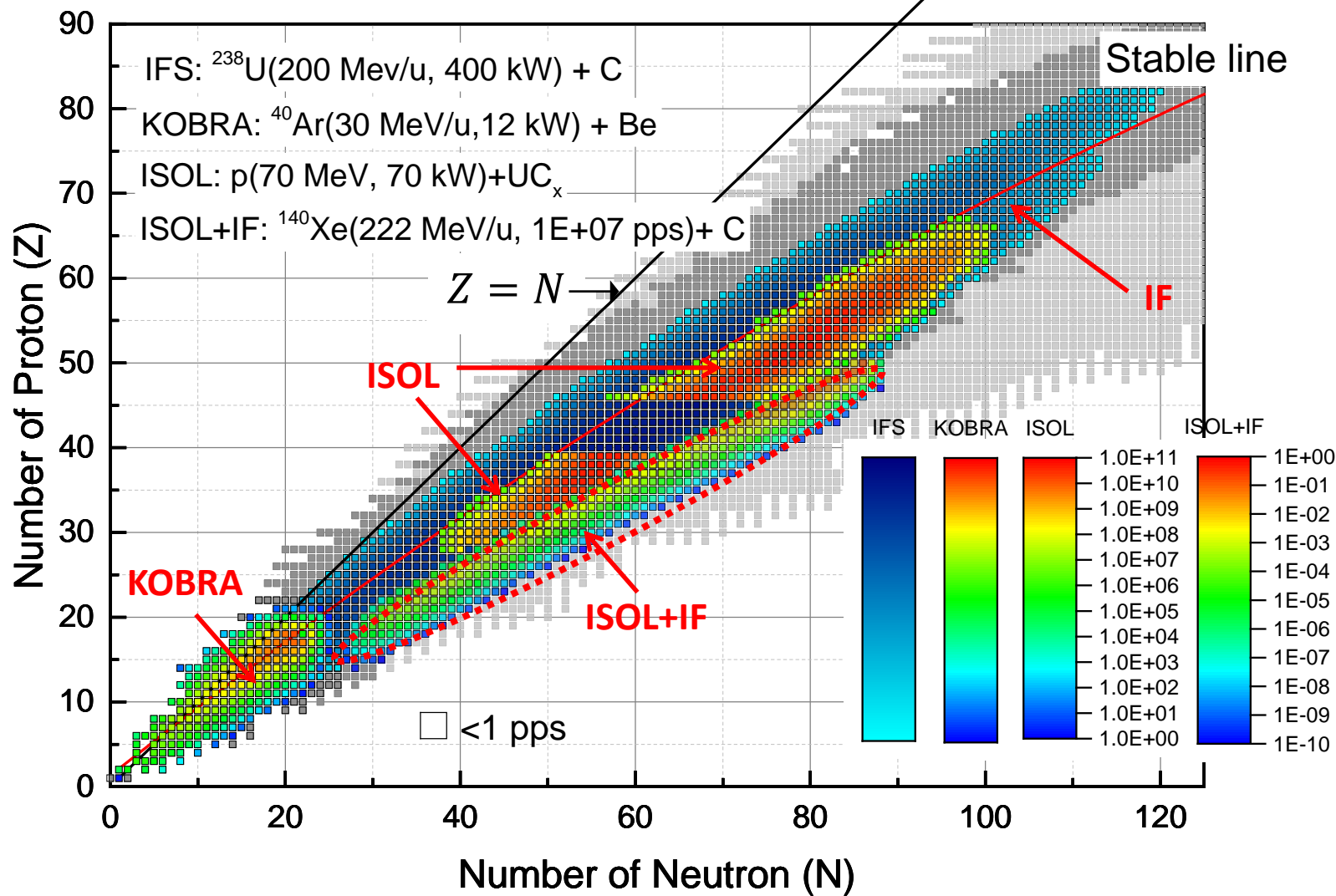


Layout of RAON

	Driver Linac				Post Acc.	Cyclotron
Particle	H ⁺	O ⁺⁸	Xe ⁺⁵⁴	U ⁺⁷⁹	RI beam	proton
Energy (MeV/u)	600	320	251	200	18.5	70
Current (pμA)	660	78	11	8.3	-	1000
Power (kW)	> 400	400	400	400	-	70

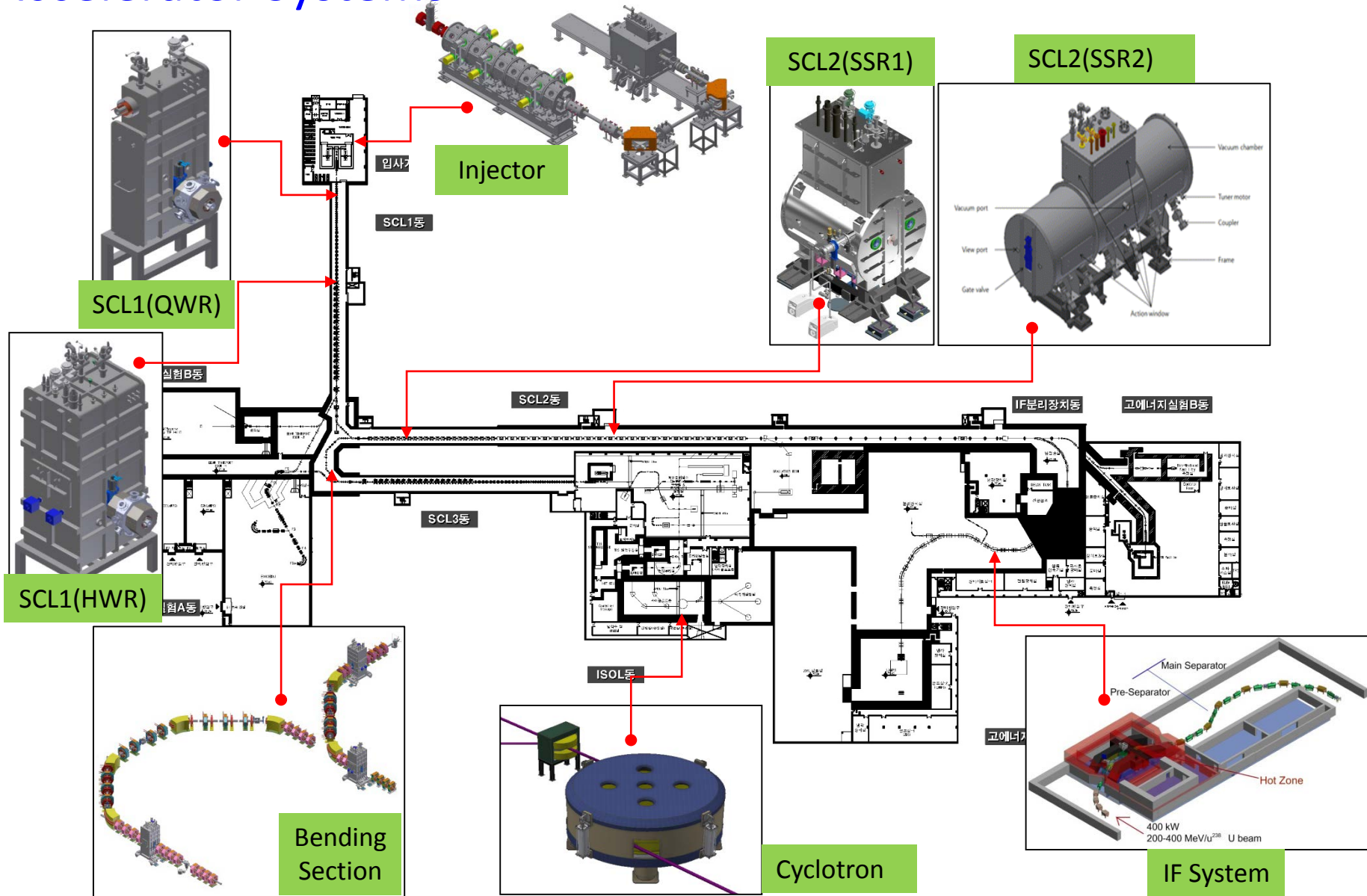


Expected RIBs at RAON

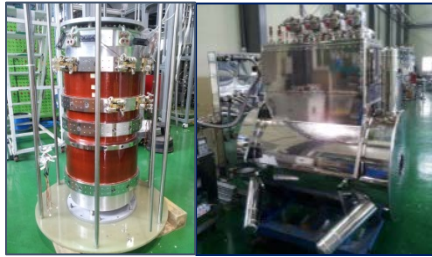


RAON aims to provide an access to the unexplored regions of nuclear chart.

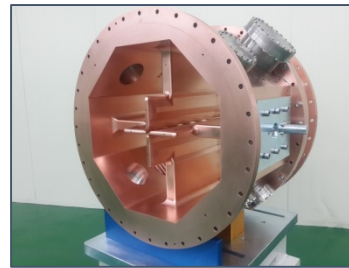
Accelerator Systems



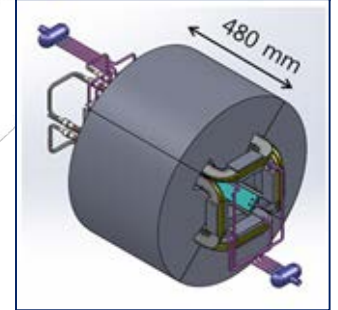
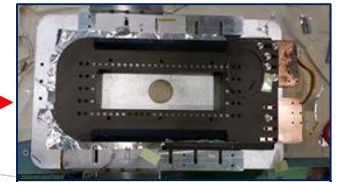
Prototypes of Accelerator Components



28 GHz ECR Ion Source



RFQ



HTS Q-magnet



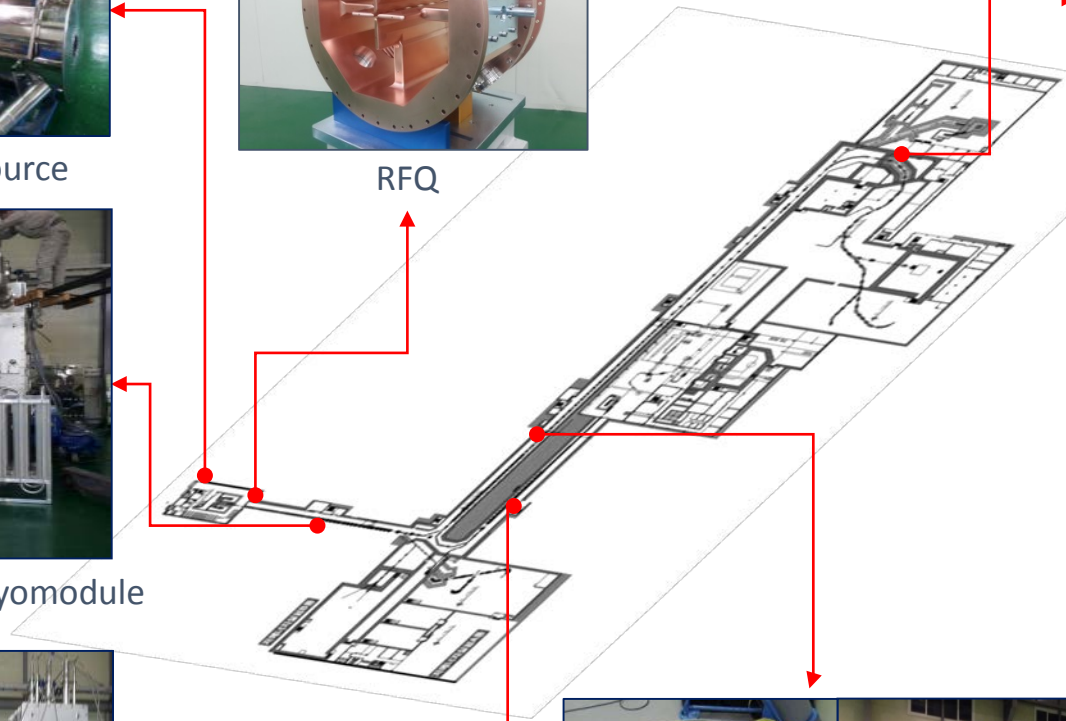
QWR SC Cavity & its Cryomodule



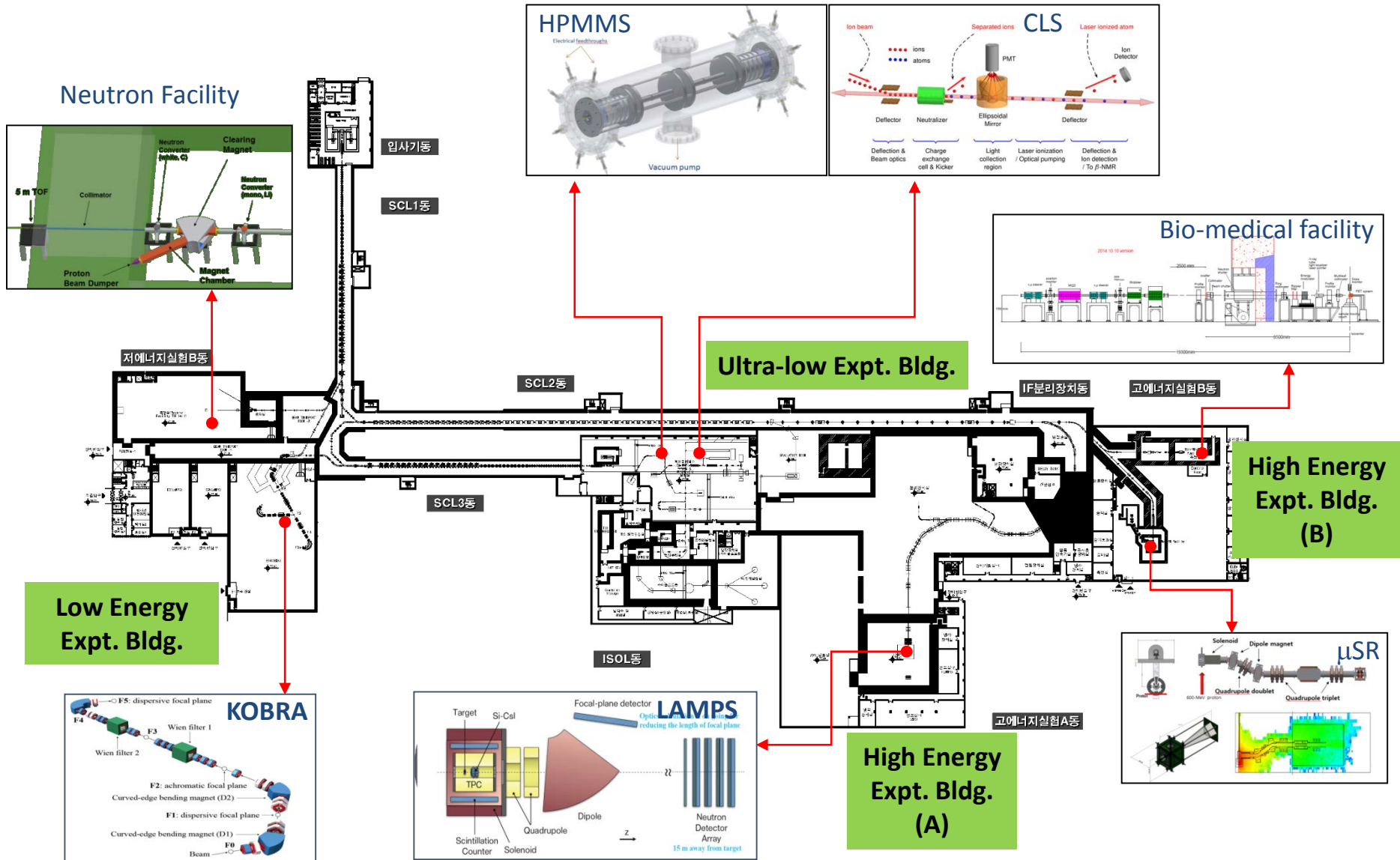
HWR SC Cavity & its Cryomodule



SSR SC Cavity and its Cryomodule



Experimental Systems



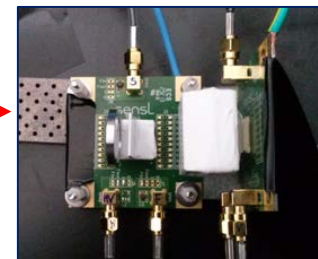
Prototypes of Experimental Systems



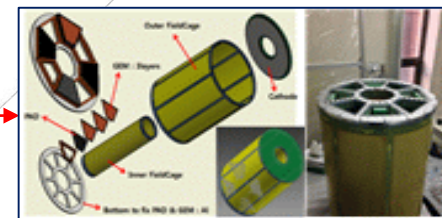
Gamma array



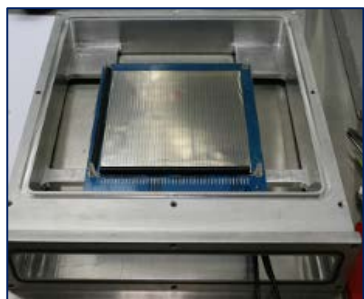
LASER for collinear laser spectroscopy



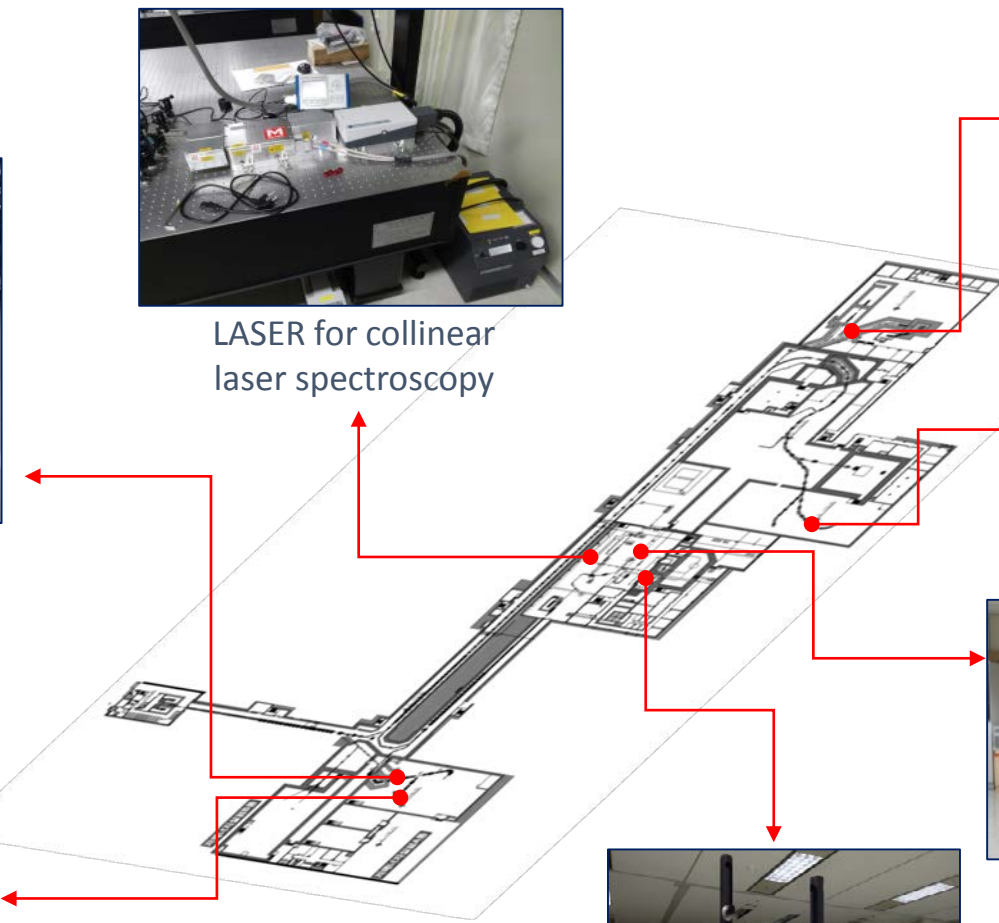
β -detection system for μ SR



Time Projection Chamber



Beam-tracking detector (PPAC)

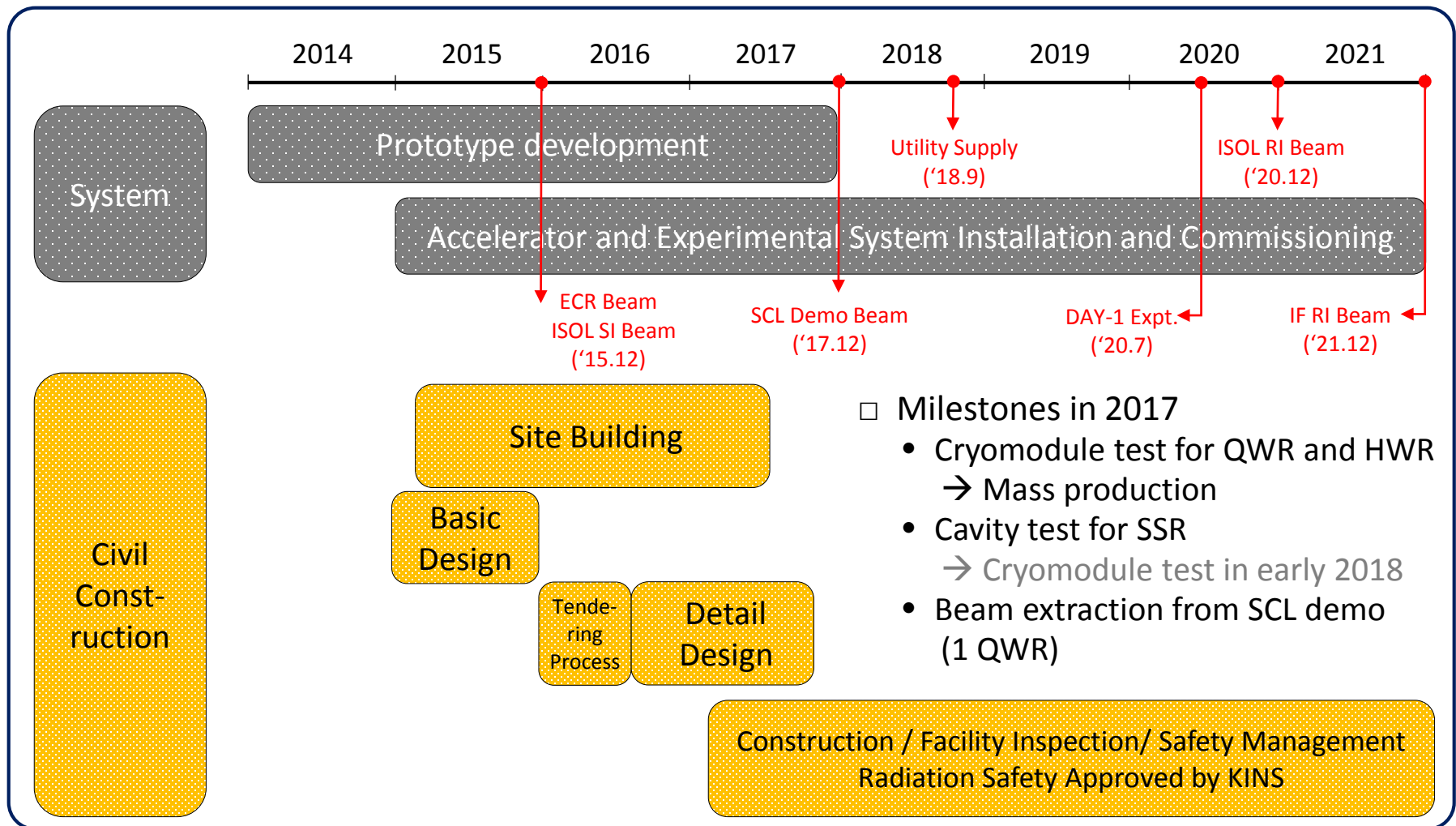


ISOL beam diagnostics



ISOL target

Major Milestones



Summary

- Rare Isotope Science Project (RISP) at IBS, Korea is moving forward.
- RAON will be the first accelerator combining ISOL and IF for more exotic radioactive ion beams.
- The construction and civil engineering for RAON has begun: The ground breaking for accelerators and experimental buildings was done on Feb. 13th, 2017.