DAWONSYS

Collaboration between Lab – Industry - University

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About Dawonsys

We are the expert of developing, designing and manufacturing high-end power supplies in Korea.

Summary of Korea Accelerator Collaboration

√ Korea is the one of the major country to invest in the field of particle physics as well as nuclear fusion.

√ In this decade, our government has been supporting a few projects of accelerators like 4th generation of XFEL at PAL, Heavy Ion Medical Accelerator at KIRAMS, Rare Isotope Science Project and so on.

√ The industries in Korea related with accelerator is not so much mature in term of core technology of accelerator like Klystron, DTL & RFQ and other core parts of accelerator facilities.

√ However, we have been spending a lot of efforts and investment in developing such core parts or high end power supplies.

√ We, Dawonsys, are the major manufacturer of power supplies and have been participating in many Korean accelerator projects.

Major Accelerator Projects in Korea

◆ PAL XFEL

√ Under installation of Modulator
√ Under production of Magnet Power Supply
√ Building construction almost completed
√ Korean Industries involved: Modulator, SLED, Waveguide, Magnet power supply

☞ Beam Energy : 10Gev
☞ Length : 1.1km

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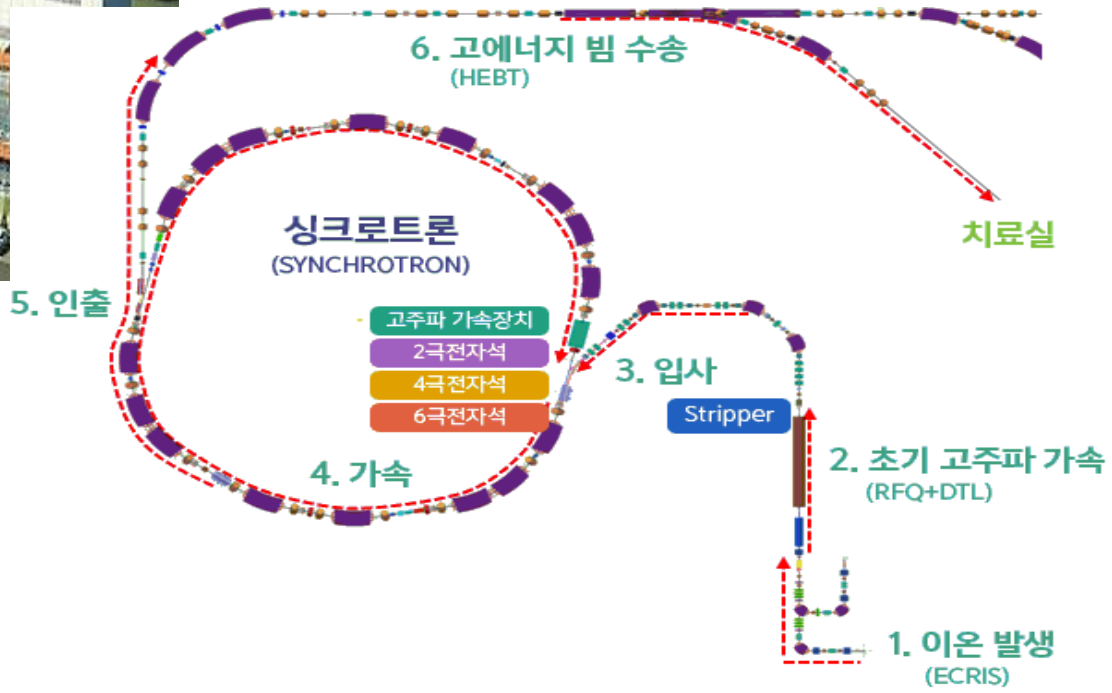
◆ Heavy Ion Medical Therapy Facility

√ Under final scheme planning
√ Discussion on collaboration with participants from Korean industry
√ Building almost completed

☞ Beam Energy: 110~430MeV/u

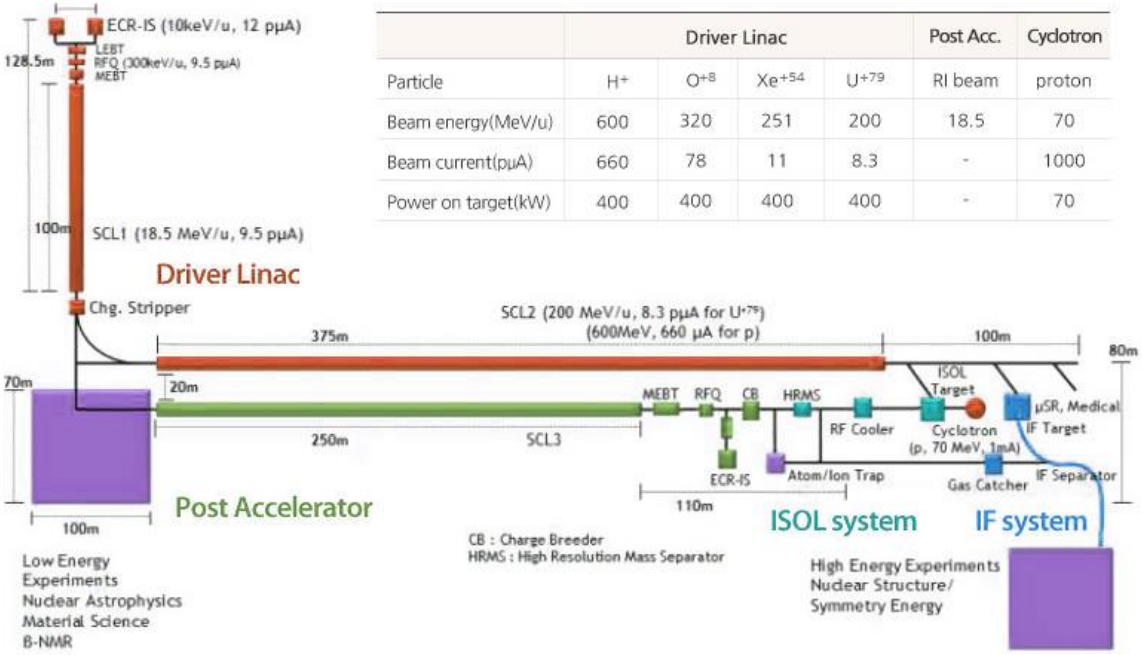


About Dawonsys

◆ Rare Isotope Science Project

√ Under final scheme discussion
√ Discussion on development of core parts of accelerator with Korean manufacturers

☞ Beam energy: 200MeV/u



	Driver Linac				Post Acc.	Cyclotron
Particle	H^+	O^{+8}	Xe^{+54}	U^{+79}	RI beam	proton
Beam energy(MeV/u)	600	320	251	200	18.5	70
Beam current(pμA)	660	78	11	8.3	-	1000
Power on target(kW)	400	400	400	400	-	70

Collaboration between Lab–Industry–University

For developing the core technologies of accelerators, the industries are collaborating with laboratories and universities in the field of

1. Better stability of power supplies
   ex) 1ppm magnet power supply

2. High value-added magnet power supply
   ex) Scanning magnet power supply for medical purpose

3. Localization of mechanical parts
   ex) Superconducting Quarter Wave Resonator)

4. Cooperation on testing methods

Collaboration between Lab–Industry–University

The ways of collaboration are

1. To make the proposal on new technology together to get a fund from government and other public sector

2. To gives a task to laboratory or university from industry to develop a core technology by providing a development cost

3. Co-design from initial stage of accelerator system

4. Periodic discussion on current issue and future roadmap

Collaboration between Lab–Industry–University

With such collaboration,

1. Technologies that each party have been experienced and generated an idea were transferred to the others for better performance of accelerator system.

2. Finalizing a required specification on the system by mutual discussion between core participants.

3. Establishing a road map together.

4, Localization of core technologies in the system.

Collaboration between Lab–Industry–University

For wider cooperation, various proposals and investments on making a science-business belt to enhance a cooperation between lab-industry-university-government.

1) Daejeon science-business belt on the basis of Korea Basic Science Institute and Rare Isotope facility.

2) Gyeongbuk/Daegu science-business belt on the basis of PAL and Korea Multi Purpose Accelerator Complex

Thanks for your listening!