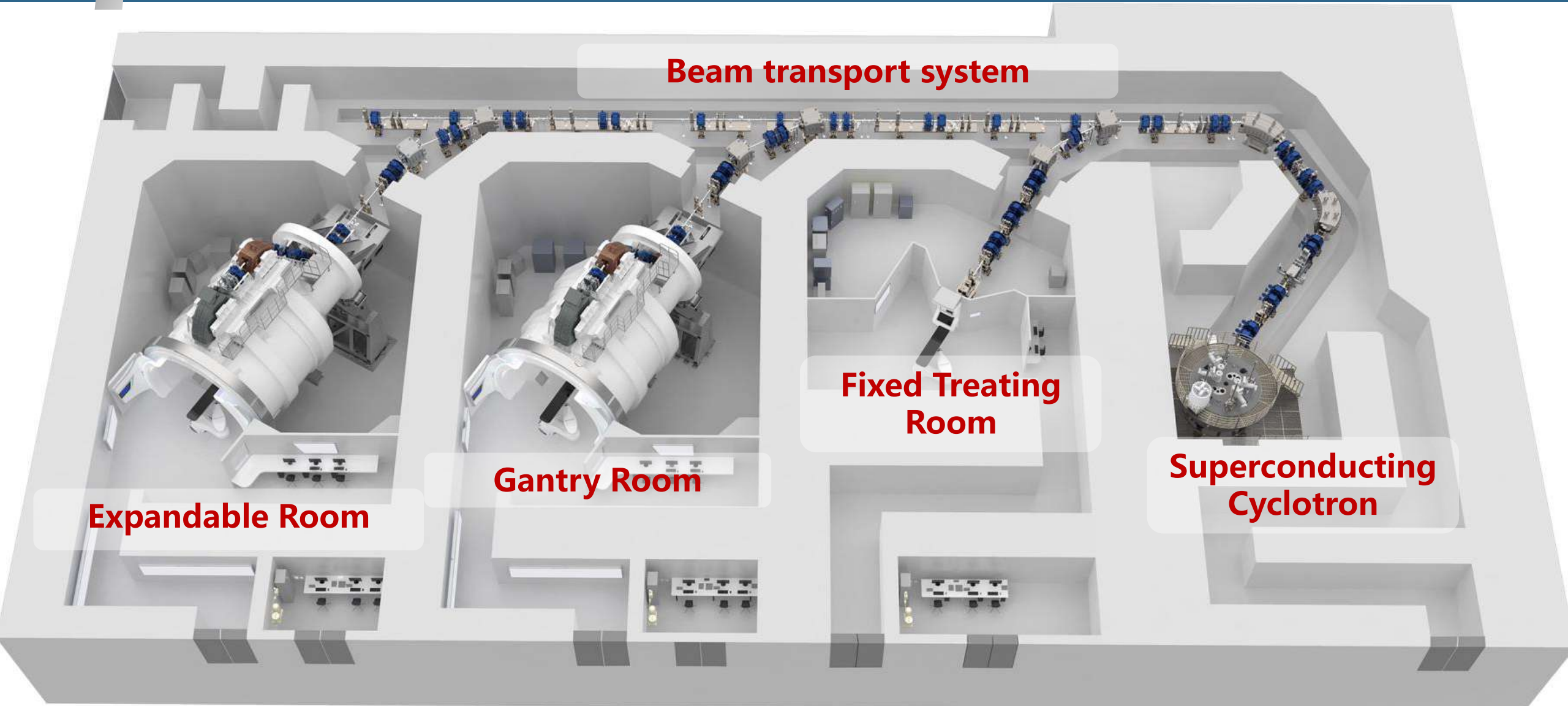




Introduction of the Compact Proton Therapy System with Superconducting Cyclotron

Hefei CAS Ion Medical and
Technical Devices Co., Ltd.

Superconducting Proton Therapy System



Parameters and Values

Gantry Room/ Fixed Treating room	
Treating Room	Fixed Treating room
Particles	Proton
Cyclotron	Superconducting
Maximum Energy	240 MeV
Energy Range	70-220 MeV
Beam Intensity	≥ 800 nA
Motion Management	Respiratory Gating Available
Rotating Range	$\pm 185^\circ$
Gantry Weight	150 t
Positioning Accuracy@ Iso-center	± 0.4 mm
Treatment Nozzle	Pencil Beam Scanning
Irradiation Field	30 cm \times 40 cm
Treatment Depth	4-30 cm
Patient Positioning Accuracy	0.2 mm

Superconducting Cyclotron

- Compact design saves costs and floor space

Compared with conventional magnets, the compact superconducting cyclotron saves more than 50% energy, and its weight is 60% of that of a synchronous cyclotron of the same.

The optimized design of compact cyclotron structure makes the required building volume reduced by three times. The total cost has been reduced by one half.

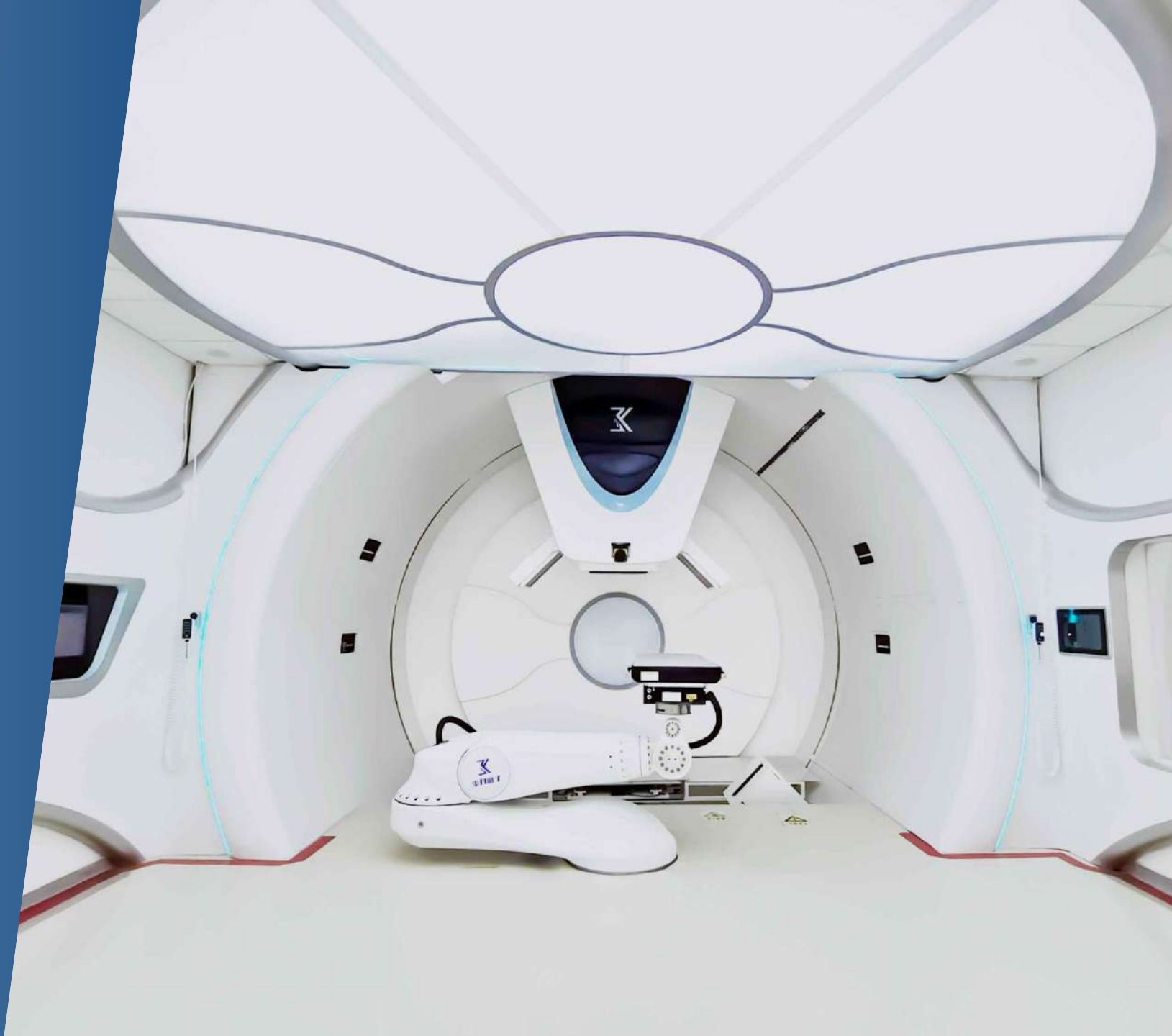


Gantry Room

-Design of humanistic care

The shape of the treatment room where patients receive proton therapy is a giant and warm cocoon, just like a butterfly spreading its wings and getting ready to fly at any time.

The human-centered design enables patients to be treated in a warm and comfortable environment, meaning they will break out of their cocoons and be reborn.



Accurate patient positioning and treatment

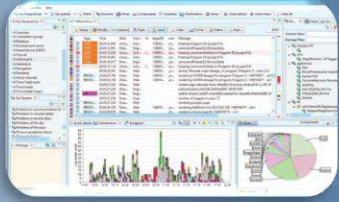
The system has $\pm 185^\circ$ rotating gantry, with an isocenter deviation of less than 0.5mm.

By compensating the set-up error through the 6-degree of freedom bed, the system ensures a patient positioning precision of submillimeter level.

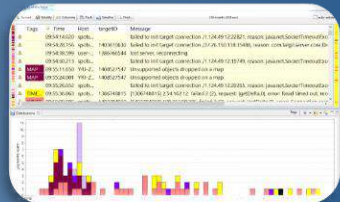
Once the patient positioning is completed, proton irradiation therapy begins. The system adopts advanced pencil beam scanning technology to improve the accuracy of beam control.



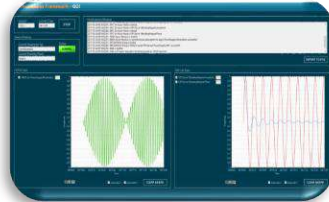
Reliable security control system



safety interlocking



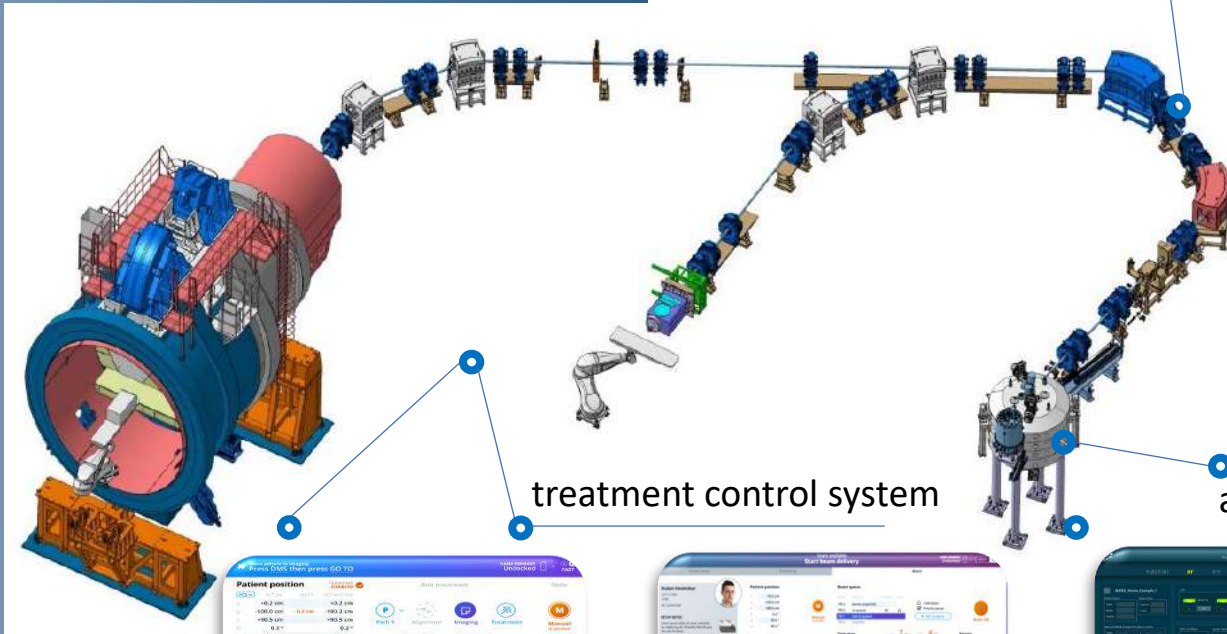
central log



data storage

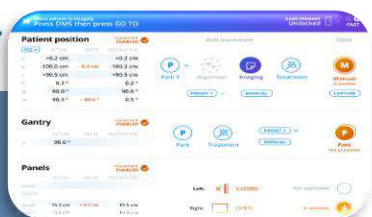


beam transportation
line control



treatment control system

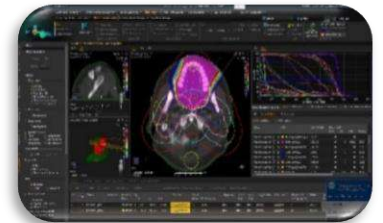
accelerator control



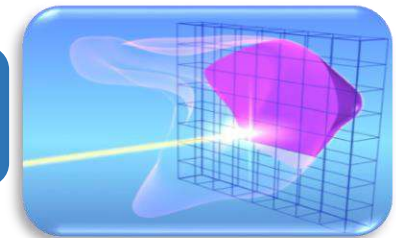
tumor
diagnosis



protocol



treatment
control

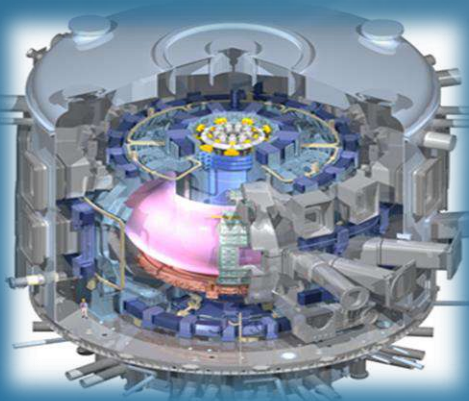


data
center



Technology Support

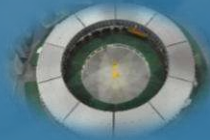
With the experience accumulated in fusion engineering and the development of other large scientific devices, our team transforms the sci-tech Achievements into high-end medical device products.



ITER



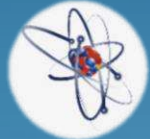
EAST Tokamak



Superconducting technology



Radio Frequency



Ion Physics



National Big Science Research Plan



Vacuum mechanical integration technology

Superconducting magnet technology

Radio Frequency

Robot thechnology

Project management

Equipment Integration

Quality Control

Magnet manufacturing

Ion Physics

Mechanical engineering

cryogenic engineering



Cyclotron



CBCT image guide system



Transportation Line



Rotating Gantry



Gantry Room



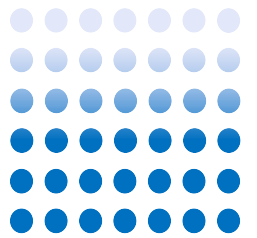
Fixed Room



Software Design



Therapy Control System



Technical Cooperation

HFCIM has cooperated with renowned experts and research institutes for a long time to promote technological innovation. HFCIM has established close and win-win cooperation relationship with a number of institutions at home and abroad.



Thank you