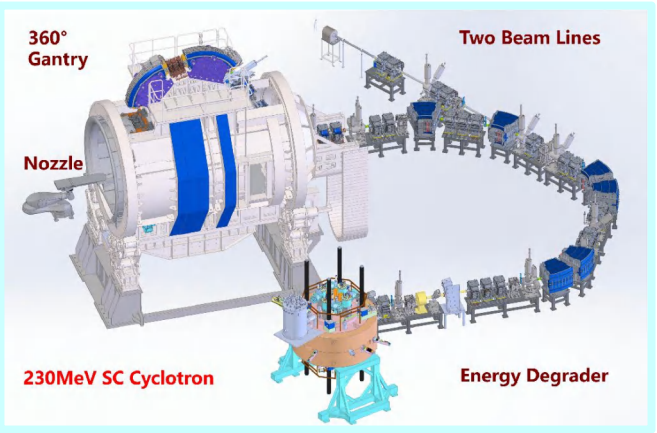
The Realization of Ultra-High Dose Rate and Potential Frontier Applications on 230 MeV SC Cyclotron CYCIAE-230

Beam Commissioning

The Realization of Ultra-High Dose Rate

A Research Platform Based on a SC Cyclotron



- Energy: 243MeV;
- Beam Intensity: 500nA-1.8uA;
- Energy switching within: 50 ms;
- Isocentric center accuracy of 0.3 mm.

Test Results

A Faraday cup equipped with high speed electronics provided real time beam current measurement.

Trim Rod parameters	Central region beam current	Extracted beam current	Extraction efficiency
7.5G, 165°	7.44 nA	6.24 nA	83.9%

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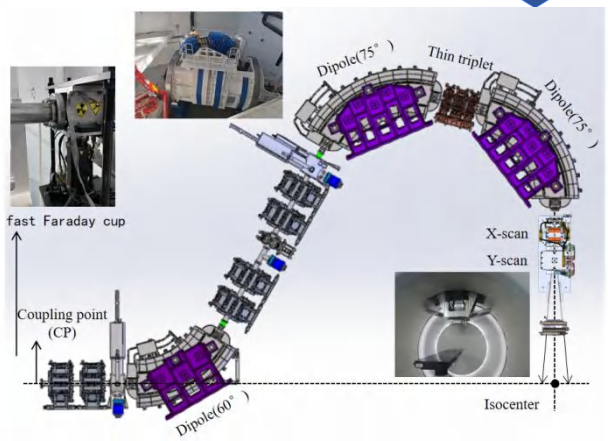
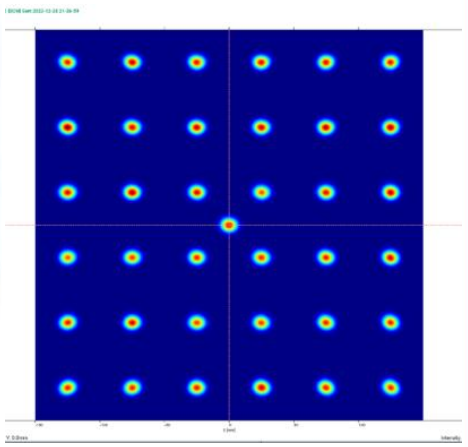
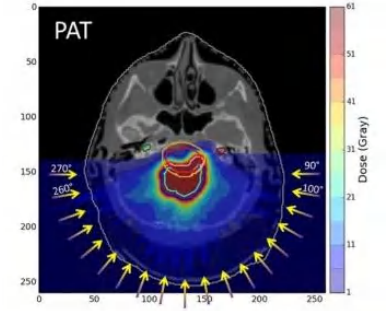
Proton Therapy Terminal





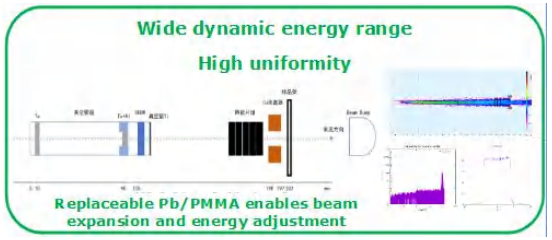
Short energy switching time and high positioning accuracy is suitable for **SPArc**. Ultra-high dose rate good for fast scanning **PT**, even for **FLASH**.

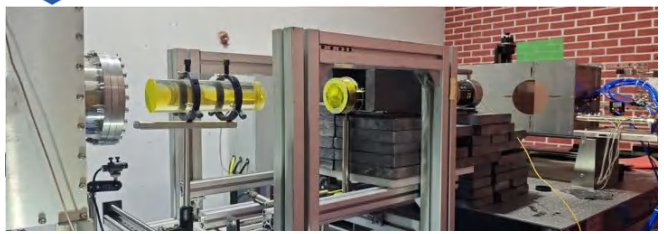


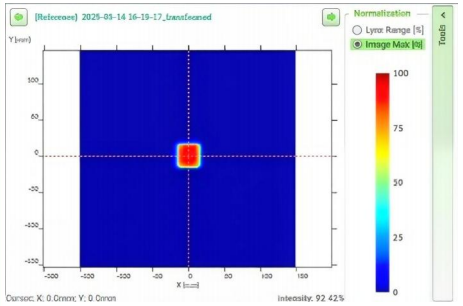
SPArc

FLASH Therapy

Research on Irradiation Effects



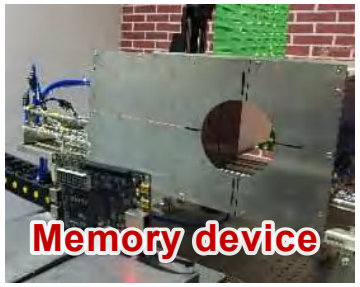




Typical Parameters:

- The uniformity exceeding **90%** was measured within a 30 mm × 30 mm irradiation field.
- Energy range : **20~250 MeV** continuesly (Degrader + Shifter)

Ultra-high dose rate good for proton irradiation of large quantities of microchips, and for SEE test etc as well.



Welcome to the poster #141, #155, #156, #158