

# Project Name: An Ultrafast Multi-Source Stereotactic Radiotherapy System

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## Technology

Radiotherapy (RT) is a major modality to treat cancer, and 60% of cancer patients require RT. However, current RT technology has limitations: 1) RT will damage immune system and hence reduce the chance of cure; 2) patient body and organs may move during RT; 3)  $4\pi$  noncoplanar stereotactic RT is difficult for other body sites except for the brain due to gantry design; 4) some RT devices lack of precise image guidance. Integrating multiple (3 or 4) high-current compact accelerators in a ring-shape gantry, we have designed an innovative RT system that can solve all the above limitations.

## Stage of Development

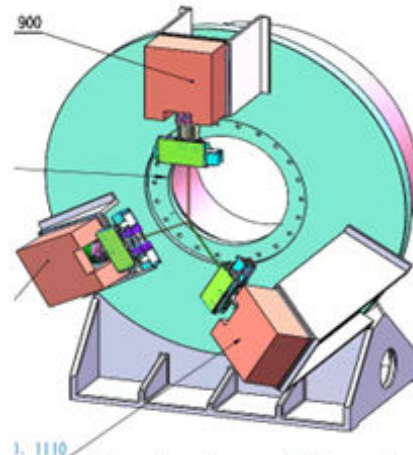
This project is a collaboration of several groups. 1) Device patent has been awarded in USA in 2024; 2) The high-current compact accelerator has been developed by Tsinghua Univ. in Beijing; 3) All the other key components have been developed by Beijing Huake Xianfeng Medical Device Inc.

## Key Advantages

- **Ultrafast:** 16 times faster! treating 18Gy radiosurgery session in 10 seconds!
  - Reduce the damages of immune cells in blood from 90% to 25%
  - Greatly reduce the chance of patient motion during RT
  - Greatly improve the efficiency and cost effective.
- **Sharp:** One gantry rotation forms 3-4 noncoplanar arcs, equivalent to 300 beams focusing on tumor, very shape dose distribution
- **Precise:** Using diagnostic-quality CT for image guidance

## Opportunities

The RT equipment market is huge and growing. It is estimated that annual sale of RT accelerators is >250 in mainland China, and 1000 globally. We estimate that the profit for one our device is HK\$30 million. Due to its overwhelm advantage, it should be easy to reach 20% market, corresponding to annual profit of 6 billion HK\$.



Left: design of the device; Right: a rotating Ring-shape gantry system by Huake Xianfeng

## Intellectual Property

The USA patent multi-source stereotactic radiotherapy device has been awarded to Jian-Yue Jin and Feng-Ming Kong in 2024;



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