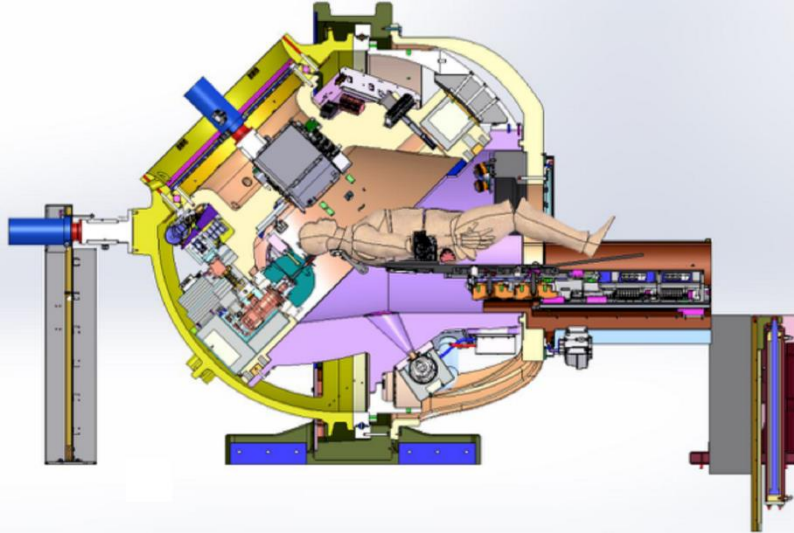




COLLOQUIUM



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National Medical Physics and Dosimetry

A Novel Self-Shielded 3MV dedicated Intra-cranial Radiosurgery Device

Abstract

The purpose of this presentation is to investigate and characterize from a physics perspective the Zap-X a new, dedicated self-contained and self-shielded radiosurgery system, focusing on beam energy and performance, leakage, radiation safety, dose delivery accuracy, regulations, quality assurance, and treatment planning. The applied methods include measurements of energy, focal spot size, beam performance, dosimetry, beam data, treatment planning system, leakage radiation, acceptance testing, and commissioning.

The results of the characterization reveal a 3 MV linear accelerator with a focal spot size of 2 mm, a dose rate of 1,500 MU/min at the isocenter with a dose linearity of 3%. Beam performance, as well as dosimetry characteristics, are suitable for intracranial radiosurgery. The system is found to meet safety, accuracy, and performance requirements widely accepted in the radiation oncology and radiosurgery industry. Furthermore, the system was shown to meet the practical, clinical needs of the radiosurgery community.

3:00 p.m. - 4:30 pm, Friday, February 1st , McLane 162