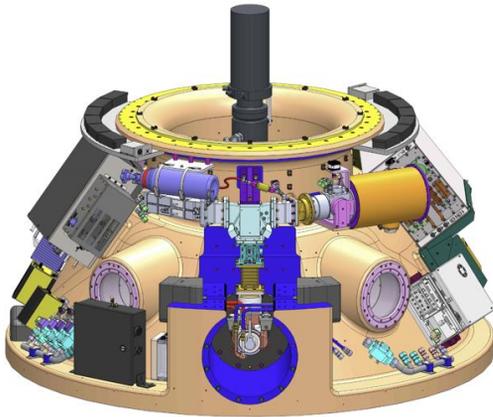




COLLOQUIUM



Dr. Georg Weidlich DABR and FACRO

Zap-X: A novel Gyroscopic Radiosurgery System

Abstract

The Zap-X is a novel radiosurgery system developed by ZAP Surgical Systems. This device is intended for stereotactic radiosurgery (SRS) treatment of intracranial and cervical spine lesions. A 3.0 megavolt linear accelerator (linac) is the source of therapeutic radiation. The linac is mounted within a combination of yoked gimbals with attached radiation shielding, that enables the linac beam to crossfire from 2π steradians of solid angle, as required for cranial SRS.

Accurate therapeutic beam positioning is accomplished through two dual-axes, independent rotations of the accelerator, and precise movements of a robotic patient table. The patient is supported on a moveable treatment table that extends outside the treatment sphere but which itself is also enclosed by additional radiation shielding during radiosurgery.

The Zap-X accomplishes precise three-dimensional (3D) patient registration by means of an integrated planar kilovolt imaging system that also rotates around the patient's head. Pairs of non-coaxial x-ray images and image-to-image correlation are utilized to determine the location of the patient's anatomy with respect to the machine.

3:00 p.m. - 4:30 pm, Friday, March 11th,
In-Person: McLane 162

Virtual: <https://fresnostate.zoom.us/j/85761466130?pwd=UzQ3VXFPR29Zd2cwekFVOVZUSjNVdz09>