

Applied Physics Seminar

Linear Accelerators for Radiation Therapy

**Presented by Matthew Sauder
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The acceleration of electrons through linear accelerators (linacs), and their use to generate beams of mega-electron-volt (MeV) photons, has been one of the basic tools of radiation therapy for many decades. The interactions of these MeV photons within tissue can be used to combat cancerous growths and it is my goal in this talk to discuss these interactions as well as the techniques used to generate the MeV photons. This includes an overview of the microwave principles used for linacs in the acceleration of electrons, from the creation of radiofrequency currents within the klystron, their delivery to the accelerator structure using waveguides, to electron behavior in the accelerator structure. Beam transport, shaping, and quality assurance will also be explored as I consider an electrons journey from injection all the way to delivery to the target.

Friday, April 5th

CL 305

3:30 – 4:30