



# The Role of the Physicist in Proton Radiation Therapy

In June 2015, Mayo Clinic (Rochester, MN) started treating cancer patients with a new pencil-beam-scanning proton therapy facility. The facility uses a narrow beam of protons, accelerated to about two-thirds of the speed of light, which are then scanned in three dimensions across the tumor. By using multiple beam angles and energies, the radiation dose can be painted into the tumor while largely avoiding healthy tissue. This project was the result of a large team. Within this team, a small group of medical physicists has been integral in the planning, construction, commissioning, and operation of the new facility. These various roles of the physicists in proton therapy will be discussed. Some of the innovations emerging from this effort will be presented. The benefits of proton therapy over conventional x-ray radiation therapy will also be addressed along with a general overview of the proton therapy treatment process.



**Wednesday, February 21**  
**2:00 - 3:00 p.m.**  
**RNS 210**

*Refreshments Served!*

## **Nicholas Remmes, Ph.D.**

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Nicholas is currently a medical physicist at the Mayo Clinic's proton therapy facility in Rochester, MN where he has been on staff since 2011 following a three year fellowship in medical physics at the same location. The state-of-the-art proton therapy facility started treating patients in June of 2015.

Nicholas attended Guilford College, a small liberal arts school in North Carolina where he majored in Physics and Mathematics. After graduating from Guilford, Nicholas spent four years with Bank of America before deciding to go back to graduate school for a PhD in condensed matter physics at Indiana University. While working on his degree, Nicholas was drawn to the field of medical physics through his exposure to the new proton therapy facility that was just getting off the ground at Indiana University, leading him to pursue a medical physics fellowship at Mayo Clinic after graduating.