

## **NUCLEAR PHYSICS IN PROTON RADIOTHERAPY**

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Discoveries and technological advances spurred by the demands of nuclear physics research find applications in many disciplines, including providing benefit to society through the treatment and diagnosis of disease. As an example, proton radiotherapy is a precise form of radiation treatment for cancer. Due to the characteristic Bragg peak associated with ion energy deposition, proton therapy provides the radiation oncologist an improved method of treatment localization within a patient, as compared with conventional radiation therapy using X-rays or electrons. This can be accomplished only in concert with advances in tumor identification and localization, patient motion and positioning, treatment planning and evaluation, and a host of supporting technologies. An overview of proton therapy will be presented, with some emphasis on landmark and recent developments.