

Proton Radiography and Computed Tomography

Proton computed tomography (pCT) is a new medical imaging technique that offers many advantages over conventional X-ray CT, especially when used in conjunction with proton therapy treatment. The pCT scanner consists of two fiber trackers in front of the object, two fiber trackers behind the object, and a range detector behind the rear fiber trackers. The residual proton energy is measured in the range detector to determine the water equivalent path length traversed by the proton. The proton trajectory and residual range information can be used to reconstruct a three-dimensional image of the object. Currently studies are being performed to assess the accuracy and precision of the pCT scanner in a medical environment as well as a comparative assessment of its benefits over traditional X-ray CT. A general overview of the pCT scanner will be presented in this poster.

Primary author: GEARHART, Andrew (Northern Illinois University)

Presenter: GEARHART, Andrew (Northern Illinois University)