Contribution ID: **105** Type: **not specified**

Prompt gamma particle imaging

Wednesday, 7 September 2022 16:30 (1 hour)

The lecture will give an overview of the utilization of prompt-gamma (PG) radiation, emitted from the patient' s body during fractionated particle therapy treatment, for range and treatment verification. After the nuclear physics basics of the emission of prompt gamma rays have been refreshed, the three fundamental approaches for PG-based particle range determination will be discussed, which use either spatial, temporal or spectroscopic information of PG - namely prompt gamma imaging (PGI), prompt gamma timing (PGT) and prompt gamma spectroscopy (PGS), respectively. Special emphasis will be on the interpretation of the complex PG data for the distinction of clinically relevant from irrelevant treatment deviations, necessary for the clinical application of PG for treatment intervention in an online-adaptive PT realization. Results from the evaluation of clinically acquired PGI data will be presented.

Primary author: RICHTER, Christian

Presenter: RICHTER, Christian