

Range verification for a mixed Helium-Carbon Beam

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Particle therapy provides a significantly more precise dose distribution within the patient compared to conventional photon radiotherapy, reducing radiation in healthy tissue but increasing the need for dose verification. A mixed beam of helium and carbon ions, recently first produced at GSI, can enable online range monitoring and simultaneous imaging. In the case of lung cancer, the measured helium range however does not directly correlate to the carbon range in the patient due to the strong density differences which is highly patient specific. We developed a deep-learning model to predict the carbon range from the measured helium range.

Primary authors: DICK, Maximilian (GSI & Technische Universität Darmstadt); VOLZ, Lennart (GSI Helmholtzzentrum für Schwerionenforschung GmbH(GSI)); DURANTE, Marco (GSI Helmholtzzentrum für Schwerionenforschung GmbH(GSI)); GRAEFF, Christian (GSI Helmholtzzentrum für Schwerionenforschung GmbH(GSI))

Presenter: DICK, Maximilian (GSI & Technische Universität Darmstadt)

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