

# GSI - SEMINAR

Im Theorieseminarraum, SB3 Raum 3.170a

Darmstadt, Planckstraße 1

Dienstag, den 8. März 2016 um 16:00 Uhr

**Prof. Harald Paganetti**

Massachusetts General Hospital & Harvard Medical School, Boston, USA

## **"Clinical significance and uncertainties in variable proton RBE values"**

Prescriptions doses in radiation therapy are based on physics properties with biological aspects of tissue response being introduced solely empirical. Thus, dosimetric indices are used as a surrogate for potential clinical outcomes in radiation therapy. However, when using treatments with non-conventional radiation modalities such as protons, this approach is insufficient as the same absorbed dose distribution may produce a different clinical outcome due to differences in energy deposition pattern on the microscopic level. These effects are quantified by the relative biological effectiveness (RBE).

This presentation will outline the current knowledge of proton RBE variations with respect to dose, endpoint, and physics parameters. Further, the clinical relevance of these variations will be discussed. An outlook into the future of biological treatment planning in proton therapy will be given.

**Einladender: Dr. Michael Scholz**

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