

A **PhD position** is open at the Institute of Radiation Protection, Helmholtz Center Munich, in Neuherberg, Germany.

Title: “Secondary neutrons at laser-driven proton sources”

Scientific Background: A compact laser based acceleration scheme has been recently proposed to reduce the rather high installation costs of a particle therapy unit. An experimental pre-clinical beamline using novel laser-driven ion acceleration has been set up at the “Laboratory for Extreme Photonics (LEX)” and at the “Centre for Advanced Laser Applications (CALA)” facilities in Garching, Germany. For this novel source, it will be essential to characterize the associated neutron background, not only for interpretation of the foreseen biological experiments, but also for estimation of the unwanted effect of this radiation on instrumentation positioned at the treatment site, and on out-of-field doses to patients. Owing to the particularly pulsed structure of a laser-driven source, dedicated neutron dosimeters will have to be developed and tested in order to provide reliable operation at an intense and highly pulsed laser-driven proton source. This research project will be pursued building upon the long-term experience in neutron detection at HMGU.

Organisation: The project is part of the Research Training Group / Graduiertenkolleg GRK 2274 “Advanced Medical Physics for Image-Guided Cancer Therapy” which is a joint initiative of the Physics and Medical Faculties of the Ludwig-Maximilians-Universität München (LMU) and the Technische Universität München (TUM) as well as the Helmholtzzentrum München (HMGU). The training programme, funded by the German Research Foundation (DFG) for an initial period of 4,5 years, has become operational on October 1st, 2017 (Speaker: Prof. Dr. Katia Parodi/ LMU, Vice Speaker: Prof. Dr. Franz Pfeiffer/ TUM). Detailed information can be found here: www.grk2274.de.

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