FRM II
Forschungs-Neutronenquelle
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Technische Universität München

The MEDAPP group at the research reactor FRM II located in Garching is looking for a

Working Student (m/f/d)

to support feasibility studies to introduce Boron Neutron Capture Therapy at the Medical Application instrument MEDAPP.

The medical application instrument MEDAPP (https://mlz-garching.de/medapp-nectar) is one of the world's few remaining facilities for the application of fast neutrons in external radiotherapy. It is located at the research neutron source Heinz Maier-Leibnitz run by the Technical University of Munich (TUM) and located in Garching. While fast neutron therapy (FNT) with fission neutrons was performed in Garching for over three decades and is currently in the process reestablished into clinical practice, the application of boron neutron capture therapy (BNCT) is under investigation in a feasibility study. As a tumor-selective method applying thermal/epithermal neutrons in radiotherapy, BNCT has been regaining attention over recent years and is established in clinical practice in several radiotherapy centers around the world.
For the MEDAPP fission beam, first calculations of the effect of boron-enhancement on local dose deposition were already carried out and are visualized in figures 1 and 2.

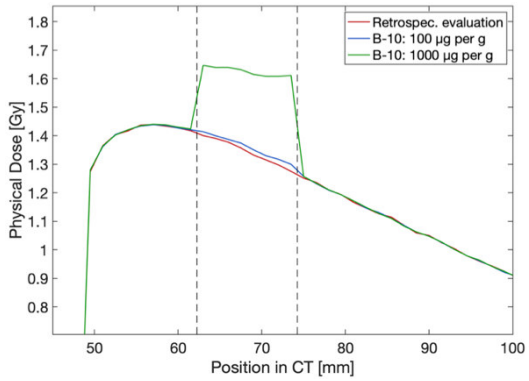

Figure 1: Boron enhanced dose deposition in soft tissue.

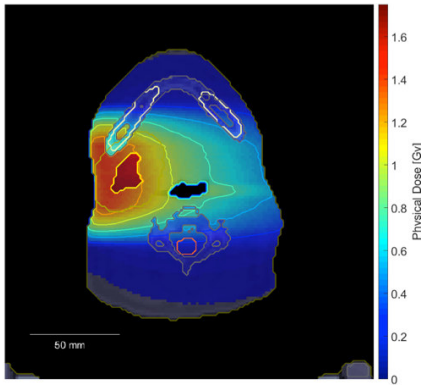

Figure 2: Boron-enhanced FNT treatment with 1mg per g.

For the evaluation of the potential of both boron-enhanced FNT and standalone BNCT at MEDAPP we are looking for a working student to support us starting in *July 2023*.

Work packages will include

- literature studies on BNCT facilities and biological boron-delivery agents.
- the design of neutron transport simulations in close collaboration with people in our group to evaluate beam filtering materials.

An ideal candidate would

… follow a master program in physics with a focus on medical physics, biophysics, or nuclear/particle physics.
… have a strong background in reading scientific papers and communicating their contents to others.
… be used to work independently.

What we can offer

- supportive working environment in a small group with high interest in the topic.
- flexible working hours throughout the week with respect to your university classes.
- insights into a developing hot topic in medical physics and radiation therapy.

Please do not hesitate to get in touch! Address your questions and application directly to:
Lucas Sommer via mail lucas.sommer@frm2.tum.de or phone 089 289 54811.