



The TU Dortmund University is a dynamic research-oriented university with 17 faculties in the natural and engineering sciences as well as social and cultural studies. Every day, around 6,700 employees on our international campus contribute to solving pressing issues of the present and the future. Openness and diversity characterise not only our interactions in research and teaching, but also in technology and administration.

Doctoral candidate (PhD) in Medical Physics (m/f/d) w12_25

At the Department of Physics, the Lühr Group on Medical Physics and Radiotherapy is offering a **position for a doctoral candidate at the earliest possible date for an initial period of 3 years**. According to public tariff regulations, the salary is based on tariff group E13 TV-L with 65% of the regular work time.

The Department of Physics at TU Dortmund University has designated **proton therapy (PT) as a research focus**. The research ranges from detector development, dose calculation and biology-guided treatment optimisation to the analysis of treatment outcome. Research projects include close collaborations with PT centres, e.g. in Essen (WPE), Dresden (OncoRay), Marburg (MIT) and Austria (MedAustron), the DFG-funded research training group Advanced Methods and Technologies for Proton Therapy (AMTEC-PRO) and the Institute for AI in Medicine (IKIM).

PT is a highly effective and precise radiotherapy technique, while **magnetic resonance imaging (MRI)** provides anatomical information with the highest soft tissue contrast. However, this advanced imaging modality has not been directly integrated as basis for treatment planning yet. Thus, more research is needed to realise the full potential of **MRI-based PT**.

As part of a team, the **PhD student** will play a key role in the development, clinical integration and testing of fast, accurate and trustworthy **MRI-based treatment planning for PT using deep learning** to enable MRI-based online treatment adaptation.

Applications from people of all genders are expressly welcome.

Applications from women will be given preferential treatment in accordance with regulations. Measures to promote gender equality in science and, if necessary, to create a more family-friendly workplace are supported.

Please note that applications from suitable severely disabled persons are welcome.

YOUR TASKS

- Integration of fast MRI-based dose calculation methods into robust treatment planning for PT.
- Compiling and pre-processing a clinical patient data set.
- Application tests of MRI-based treatment planning.
- Publishing research results at an international level.

YOUR PROFILE/QUALIFICATION

- Completed Master's degree in medical physics, physics, medical informatics or related subjects.
- Background in medical physics or radiotherapy.
- Good analytical skills and programming experience.
- High degree of independence and self-organisation.
- Social competence and good communication skills.
- Fluent in English.

IDEALLY YOU HAVE EXPERIENCE IN

- Medical imaging or radiotherapy treatment planning.
- Machine learning or artificial intelligence.

WE OFFER

- Interdisciplinary and cutting-edge field of research
- Possibility of a PhD degree
- Connection to the AMTEC-PRO research training group for PT.
- Extended research stays with clinical project partner OncoRay.
- Cooperation with (inter)national PT centres.
- Teamwork in a dynamic environment with flat hierarchies.

If you are interested, please apply **by 28 February 2025** with an **application** consisting of a motivational letter, CV, certificates and contact details of two references.

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