



With more than 6,300 employees in research, teaching and administration and its unique profile, TU Dortmund University shapes prospects for the future: The cooperation between engineering and natural sciences as well as social and cultural studies promotes both technological innovations and progress in knowledge and methodology. And it is not only the more than 34,300 students who benefit from that.

One doctorate position (m/f/d) in particle accelerator physics with AI methods

At the TU Dortmund University, one scientific employee position (m/f/d) is available starting at the earliest possible date for a period of three years. The position allows for research towards a dissertation at the Faculty of Physics.

According to public tariff regulations, the salary is based on tariff group E13 TV-L with 50% of the regular work time. An increase to 75 % within the employment period is intended.

Research in the field of accelerator physics will take place at the Center for Synchrotron Radiation which operates the 1.5 GeV electron storage ring DELTA as a synchrotron light source and for accelerator science studies. With excellent instrumentation and a large fraction of beam time dedicated to accelerator physics, the storage ring offers ample experimental opportunities to study beam dynamics and beam diagnostics as well as the interaction between relativistic electrons and laser radiation.

For the future control and optimization of the DELTA accelerator complex, modern methods from different fields of Artificial Intelligence (AI) will be employed, e.g., machine learning with artificial neural networks, evolutionary algorithms, and neuro-fuzzy systems.

YOUR RESEARCH TOPIC:

- Development of simulation codes for beam dynamics in particle accelerators. Implementation of detailed accelerator models and their benchmarking in experimental studies using AI methods.

In addition, the position involves the preparation and conduction of physics-related courses (2 hours/week) as well as the supervision of students.

YOUR PROFILE:

- Master-level university degree in physics or a closely related discipline (e.g., applied computer science) with very good grades.
- Profound experience in programming with C/C++/Python.
- Genuine interest in accelerator physics. Experience in this field and/or in AI-related topics is advantageous.
- Very good language skills, orally and in writing, in German and/or English.

TU Dortmund University strives to increase the number of women in academic research and therefore encourages women to apply.

We explicitly note that applications of severely disabled persons are welcome.

Please send your applications including copies of the usual documents by mail until 28.04.2020 stating **reference number w35/20** to:

Prof. Dr. Shaukat Khan
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