

# Wissenschaftliche Hilfskraft

## Data Collection for Machine Learning Applications in Particle Accelerator Physics

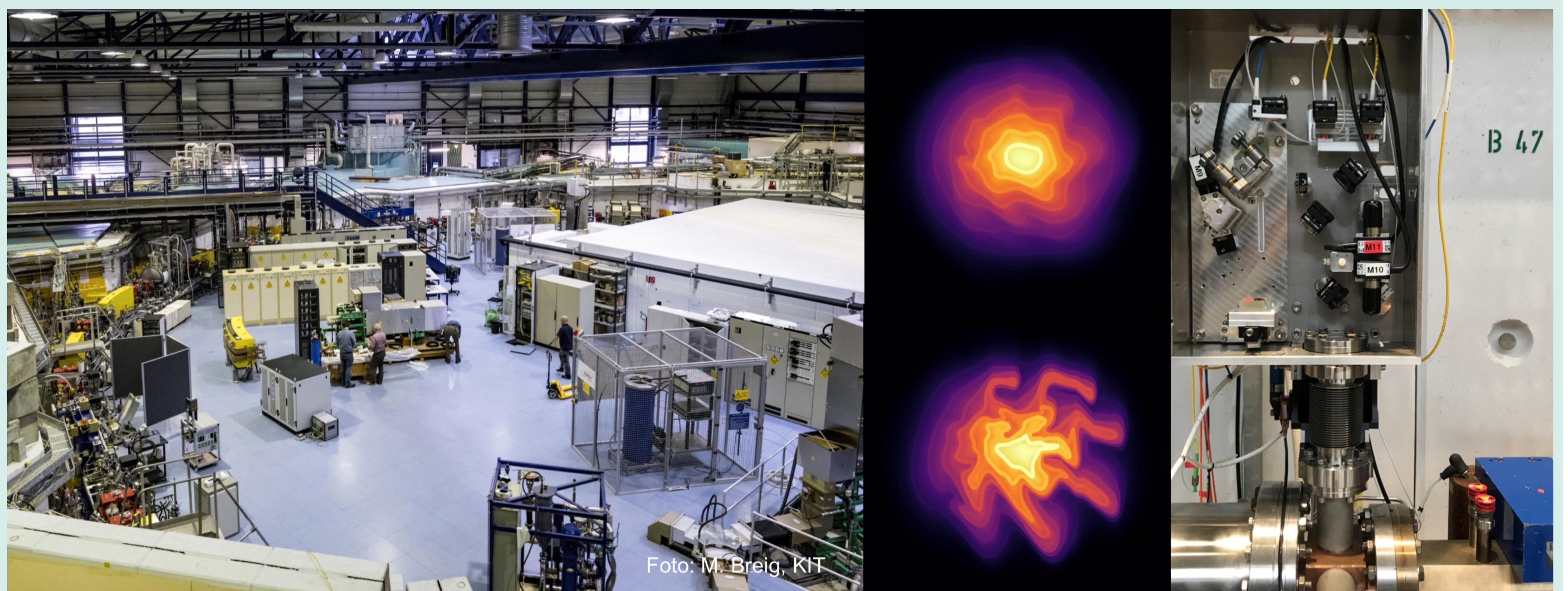


Foto: M. Breig, KIT

### Institute for Beam Physics and Technology (IBPT)



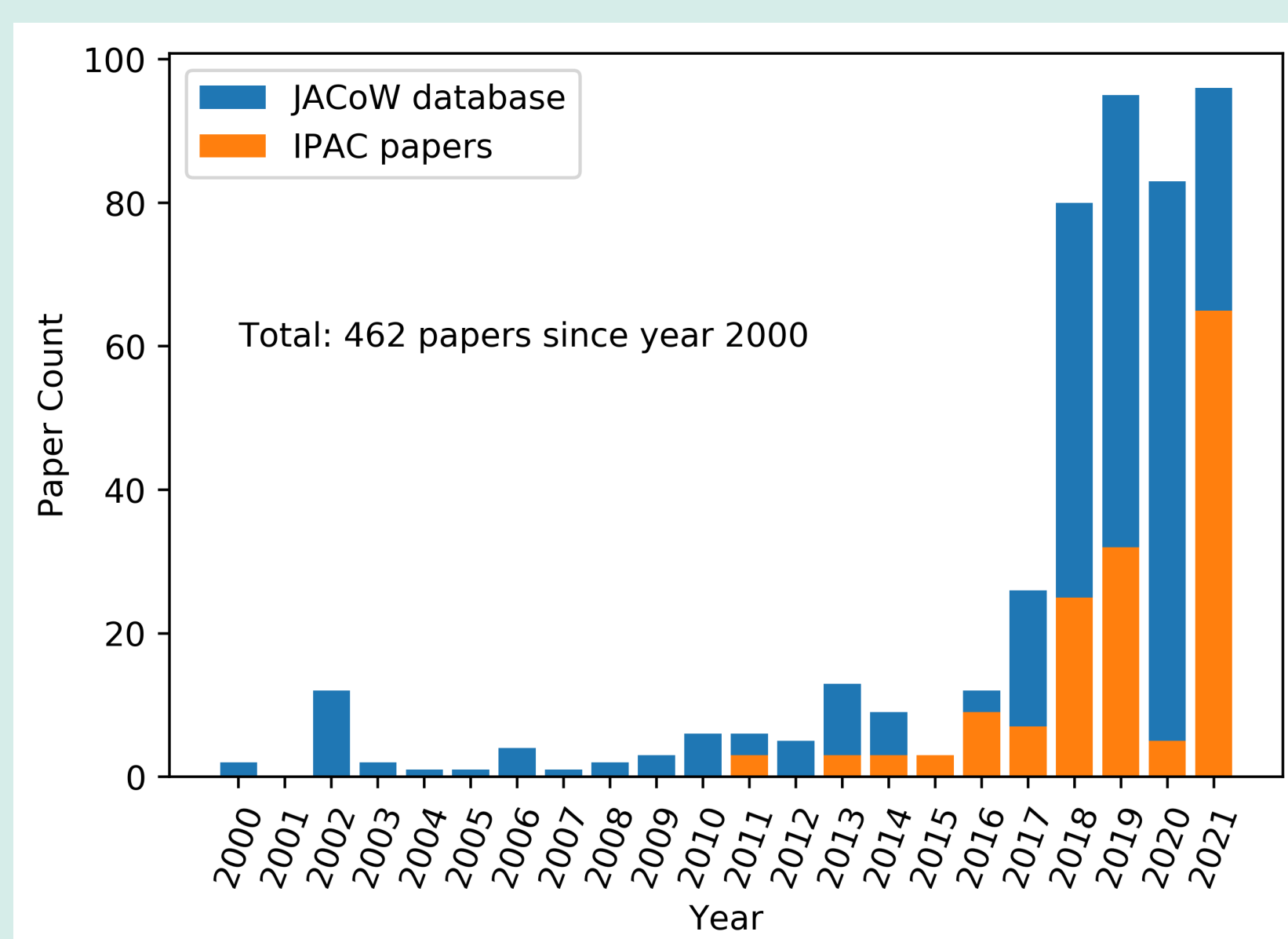
IBPT operates the 110m long electron storage ring KARA and the short-pulse linear accelerator FLUTE on Campus North. The construction and constant improvement of these large-scale research facilities offer a variety of exciting theses for physicists and engineers. Are you interested in particle accelerators, but you do not find a topic that you like at the moment? Just get in touch with us! Due to the many possibilities, we do not advertise every job.

### The project

IBPT and the institute of applied informatics and formal description methods (AIFB) are collaborating on applying ML methods, such as text mining and knowledge graphs, to extract useful information from existing scientific publications in accelerator physics. This will allow the visualization and easy exploration of this emerging interdisciplinary field through a web application, which could help unveil new research possibilities. We are looking for motivated students to assist us in this work!

### Background

Machine learning (ML) methods have been gaining popularity within the accelerator physics community, especially in recent years. This is reflected in the number of ML-related publications in popular publishing venues, such as the International Particle Accelerator Conference (IPAC), which is part of the Joint Accelerator Conferences Website (JACoW).



### Job description

You will be working in close contact with the students at AIFB

#### Tasks

- Build required databases of worldwide particle accelerators, ML methods, and ML applications in accelerators
- Categorization and labelling of the ML-related papers
- Helping the development of knowledge graphs and performing information extraction

#### Qualifications

- Fluency in English
- Previous programming experience in Python
- Interest in any of the following topics: accelerator physics, machine learning, text mining, and natural language processing

#### Working conditions

- Starting from 30 hours/month (1 day/week)
- Flexible working hours, possibility to work remotely

Don't hesitate to get in touch with us for more information!

### Contact

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Interested?

