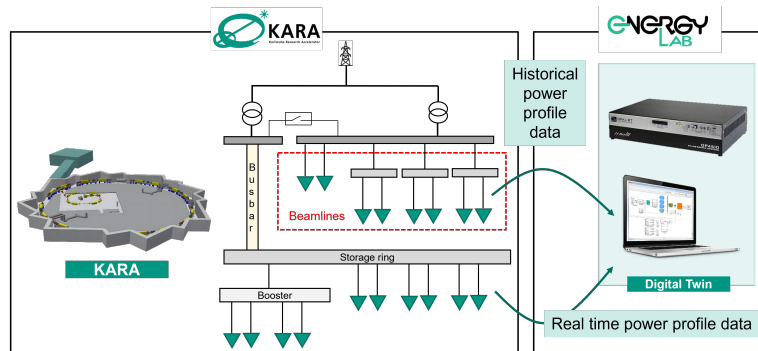


Student Assistants (HiWi Job) at Energy Lab

Development of KARA accelerator's digital twin

Job Description:

When working with accelerators, experiments take priority, limiting opportunities to test new approaches. Tests must either wait for shutdowns or proceed cautiously during operation, which slows innovation. A digital twin—a validated digital model of the accelerator—enables offline experimentation with high fidelity. This approach accelerates the search for new energy solutions without disrupting operations. For example, we are working on improving the quality of power supply. Any disturbance that we can get at the accelerator influences its performance. So, we can simulate any phenomenon you see from the electrical point of view, and by using digital twin, we can evaluate the impact on the accelerator directly but in a safer and repeatable environment.



Your Task:

- Understanding the electrical connections in KARA.
- Modeling of KARA based on electrical schematics on Simulink.
- Conducting offline testing with Historical power profile.
- Testing the model in real-time with live power profile.
- Validating model

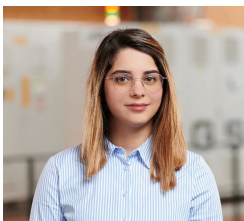
Your Profile:

- Pursuing or completed Masters in Electrical Engineering
- Experience with Matlab/Simulink.
- Basic knowledge of particle accelerators (preferred but not mandatory)

You will learn:

- Hands-on experience with real-time simulators
- Simulating scenarios and analyzing data
- Particle accelerator operations

Contact:



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Campus Nord

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Workload: 20-40h per month

Start: from now on

