PAUL SCHERRER INSTITUT

The Paul Scherrer Institute PSI is the largest research institute for natural and engineering sciences within Switzerland. We perform cutting-edge research in the fields of matter and materials, energy and environment and human health. By performing fundamental and applied research, we work on sustainable solutions for major challenges facing society, science and economy. PSI is committed to the training of future generations. Therefore, about one quarter of our staff are post-docs, post-graduates or apprentices. Altogether, PSI employs 2100 people.

The development of new normal conducting electro-magnets for the upgrade of the Synchrotron Light Source (referred to as SLS.2.0) is ongoing. Alignment of quadrupole, hexapole, and octupole magnets in the machine at the micrometer level is a major requirement: misalignment of the magnetic axis with respect to a reference position can introduce orbit distortion of the circulating particles. In the worst case, instabilities take place turning into the loss of the beam. Therefore, it is of foremost importance to: i) accurately measure the location of the magnet's axis and: ii) relate its position to a set of fiducials (for the mechanical alignment during installation). At PSI, a previously developed system, based on the vibrating wire techniques, is available for magnetic axis assessment. Due to the high number of electro-magnets to be produced and measured, a second twin measurement bench has to be implemented.

For the Large Research Facilities Division we are looking for a

Trainee

Software development of a Python application for the measurement of SLS2.0 multipole magnets' axis using vibrating wire technique

Your tasks

In the framework of the implementation of a vibrating wire measurement benches for the SLS2.0 magnets, the objective of the work is:

- Develop a Python application for the axis measurement of electro quadrupole and hexapole (normal and skew) magnets

The main tasks related to the aforementioned items are:

- Review the available software on the former measurement bench
- Define requirements of the new SW
- Specify a porting strategy of the software modules from EPIX to Python
- Implement instrument drivers using Python modules
- Design and implement the Python application
- Commissioning of the SW on the new vibrating wire bench

Your profile

- You are an engineering or physics student (minimum 4 semesters)
- Knowledge in software development using Python, measurement instruments, data acquisiton systems, and signal processing
- You are open-minded, communicative and enjoy working in an international team
- You have not yet completed your Master's thesis

We offer

Our institution is based on an interdisciplinary, innovative and dynamic collaboration.

The contract will be limited to 3 - 4 months.

For further information, please contact Dr Guiseppe Montenero, phone +41 56 310 52 61.

Please submit your application online for the position as a Trainee (index no. 8431-T1).

Paul Scherrer Institut Human Resources Management, Leandra Horn, 5232 Villigen PSI, Switzerland

Apply online now