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 future technologies, energy and climate, health innovation and fundamentals of nature. 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 2300 people.

For the PSI Center for Accelerator Science and Engineering we are looking for a

Trainee for the investigation of two-phase flow in cryogenic pulsating heat pipes

06.11.2025 • Internship • 8432-25478 • 100%

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Your tasks

For superconducting magnet applications in particle accelerators, a highly efficient cooling device working in cryogenic conditions is crucial. Pulsating Heat Pipes (PHPs) are promising candidates which, combined with a cryocooler, will cool superconducting magnets at cryogenic temperature (in this case ~30 K). The principle is to transfer heat from an evaporator to a condenser using phase change and oscillations of vapor bubbles and liquid slugs circulating in a serpentine tube. The better understanding and prediction of the PHP behavior through numerical modelling of heat transport and two-phase flow combined with targeted experimental campaigns for benchmarking the models is the aim of this internship project.

The tasks include:

- Conduct a literature survey on the state of research on cryogenic PHPs
- Extend an existing 2D ANSYS FLUENT model of neon PHP
- Participate in an experimental campaign of cryogenic PHP characterization and in the result analysis
- Benchmark the 2D model with the experimental results
- Write an internship report

Your profile

- You are a student in engineering or physics, and you are at least in your first year of the Master degree but you have not yet completed your master’s thesis
- Ideally, you have already gained knowledge in fluid dynamics as well as heat and mass transfer
- Knowledge of cryogenics, programming experience using ANSYS FLUENT or similar software and expertise working in Linux environment is a plus
- As a team-oriented and communicative person you enjoy working in an interdisciplinary group
- Good knowledge of English is mandatory

We offer

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

The contract will be limited to 3 months.

For further information, please contact Dr Carolin Zoller, phone +41 56 310 56 19, or Quentin Gorit, phone +41 56 310 37 27.

Please submit your application **online** for the position as a trainee (index no. 8432-25478).

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