

Joint Professorship in Theoretical Physics (open rank): Nonequilibrium Quantum Physics

The Faculty of Science and Medicine at the University of Fribourg, Switzerland, and the Paul Scherrer Institute (PSI) in Villigen announce the opening of a joint professorship in the field of **nonequilibrium quantum physics**. Candidates of all ranks will be considered.

GENERAL CONDITIONS

The Faculty of Science and Medicine of the University of Fribourg (UniFR) and the Paul Scherrer Institute (PSI) jointly invite applications for a professorship in Theoretical Physics within the Department of Physics at UniFR and the PSI Center for Scientific Computing, Theory and Data.

The selected candidate must have an outstanding record of independent research in the field of **nonequilibrium quantum physics**. She/he is expected to foster synergies with the Department of Physics in Fribourg and PSI, including its various large-scale research facilities. The successful candidate is expected to develop a vigorous, internationally recognized research program supported by substantial external funding and lead a research group of graduate students and/or postdoctoral researchers.

The future appointee will contribute to teaching theoretical physics courses in Fribourg with a 50% teaching load. The candidate should be able to teach in English, and, at the Bachelor level, in one or both of the university's official languages, French or German, after an appropriate learning period if necessary.

The University of Fribourg and PSI are equal-opportunity employers committed to gender balance and diversity at all levels. As a signatory of the DORA declaration, the University of Fribourg emphasizes a qualitative assessment of academic achievement.

APPLICATION PROCEDURE

Please apply exclusively through the official Faculty of Science and Medicine recruiting tool by clicking on the following link: <https://scimed-recruiting.unifr.ch>.

Application deadline: 30.04.2025.

Please upload the following documents via the link above:

1. a cover/motivation letter mentioning the position for which the candidate is applying (nonequilibrium quantum physics)
2. a complete curriculum vitae, including a copy of the diploma of the highest degree
3. a full publication list (highlighting specifically the 5 most important contributions)
4. the five most important publications ("name-papers.pdf").
5. a record of past and present funding
6. a statement of future research plans (5 pages max.)
7. a statement and record of teaching experience and interests
8. the names and full contact details of three persons who can be contacted as referees

ACADEMIC ENVIRONMENT AT UNIFR

Faculty, Sections and Departments

The Faculty of Science and Medicine is organized in two sections: The Science Section and the Medicine Section. The Science Section is composed of six departments (Biology, Chemistry, Geosciences, Informatics, Mathematics, Physics) and three institutes; the Medicine Section is composed of five departments and one institute (see <https://www.unifr.ch/scimed/en/>).

The Science Section is led by a president who is elected by the other professors and serves for a two-year period. Major decisions at the faculty level are taken by the Faculty Council, which includes the teaching staff as well as representatives of the technical and administrative staff and students.

Some research fields in the Chemistry and Physics departments overlap partially with the research activities at the nearby privately funded Adolphe Merkle Institute (AMI), offering opportunities for collaborations and shared use of infrastructure.

The Department of Physics currently employs eight professors who lead independent research groups, four in experimental physics and four in theoretical physics (one of whom is jointly affiliated with PSI). Major decisions at the department level are made by the Department Council, which includes the teaching staff as well as representatives of the technical and administrative staff and students.

Research focus

Research in the Department of Physics currently covers a broad spectrum of topics, including soft matter (both experiment and theory), photonics and nanosystems, atomic physics, solid-state physics (magnetism and superconductivity, electron spectroscopy), computational physics and theoretical interdisciplinary physics (see <https://www.unifr.ch/phys/en/research/>).

Teaching and Languages

Besides the Bachelor's, Master's, and PhD programs in Physics, which adhere to the Bologna principles, the Department of Physics provides service teaching for other curricula in natural sciences.

The University of Fribourg is bilingual, and teaching at the Bachelor's level is conducted exclusively in French and/or German. Students can choose to take their exams in either language. At the Master's and PhD levels, courses are generally taught in English. Candidates must therefore be able to teach in French or German as well as in English and should have conversational skills in all three languages (or be willing to acquire them within a few years).

The mandatory teaching load of a professor at the University of Fribourg is six hours per week (6 hours × 14 weeks × 2 semesters = 168h).

RESEARCH ENVIRONMENT AT PSI

The major role of computational science at the forefront of physics research is underscored by the creation at PSI of the 'PSI Center for Scientific Computing, Theory and Data', driven by the realization that simulations, modeling and theory have become an integral part of nearly all fundamental and applied science projects. The goals of this center is to develop the modelling know-how and computing resources for the science, engineering and accelerator program at PSI, and to provide conceptual and practical guidance and support to new science initiatives at PSI, such as the SwissFEL or quantum technologies.

The new professor will be part of this PSI Center, in close synergy with the Laboratories for Theoretical and Computational Physics (LTC), for Materials Simulations (LMS), and for Simulation and Modelling (LSM), and embedded with a group in LTC.

INFRASTRUCTURE, POSITIONS AND FUNDING

Infrastructure

Location

The **Department of Physics** is centrally located in a dedicated building on the Pérolles campus, within short walking distance to the other buildings of the Faculty of Science and Medicine. This campus also hosts the School of Engineering and Architecture and the Adolphe Merkle Institute that focuses on research and education in the domain of soft nanomaterials. The appointee will have access to the infrastructure of the department (secretariat and technical pool) and of the Faculty of Science and Medicine (library, computer cluster, shop for scientific materials and chemicals etc.).

The **Paul Scherrer Institute (PSI)**, based in Villigen on the River Aare, is the largest research institute for natural and engineering sciences in Switzerland, employing 2300 people conducting cutting-edge research in three main fields: matter and materials, energy and the environment and human health. PSI develops, builds and operates complex large research facilities. The 'PSI Center for Scientific Computing, Theory and Data' will be housed in the West side of the campus.

Computers

The University of Fribourg's computer service supplies all departmental members (academic and technical staff) with state-of-the-art PCs or Macs, along with essential office, reference, statistical and graphics software. Specific research software can also be supported for research purposes. The Department of Physics has access to a local computer cluster for larger computational tasks.

At PSI, the 'PSI Center for Scientific Computing, Theory and Data' will have access to powerful computing infrastructures.

Financial support

The new professor will receive a share of the Department of Physics' operating budget as well as additional research funds from PSI. However, the appointee is expected to actively seek additional external funding to cover the majority of research expenses. Additionally, the new professor will receive a start-up grant to expand the local computer cluster in Fribourg.

Contact for further information

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