European Research Council Project

Postdoctoral fellowship on the **theory of neural networks** starting spring 2026

The Quantitative Life Sciences (QLS) section of the Abdus Salam International Center for Theoretical Physics (ICTP) seeks applications from outstanding scientists of any nationality with a strong research record for a **postdoctoral position** starting during spring 2026.

The position is linked to the project CHORAL on the «Computational Hardness Of RepresentAtion Learning» funded by the European Research Council, with Dr. Jean Barbier as Principal Investigator.

The ICTP is a UNESCO Category 1 research institute supporting science and education in the developing world. It promotes worldwide initiatives for the career development of Women in Science. The QLS section provides a unique international research environment for postdoctoral fellows with about 15 group members, an intense program of workshops and conferences, close collaborations with local institutions (SISSA, Univ. Trieste) and internationally renowned ones (ENS Paris, EPFL, IPhT, ISTA, etc). The QLS section has expertise in a broad range of fields including statistical physics of information processing, information theory, high-dimensional statistics, statistical learning and inference, reinforcement learning, stochastic processes and thermodynamics, theoretical ecology etc. Postdoctoral fellows are encouraged, and supported, to participate in activities in developing countries in order to promote the ICTP mission.

The selected postdoctoral researcher is expected to carry out active, independent and multidisciplinary research in the broad area of:

Theory of neural networks: statistical mechanics, random matrix theory, information-theoretic and algorithmic aspects

The appointment will be made for **two years, with the possibility of renewal for up to one additional year**.

Candidates should have a background in some of the following disciplines:

- Statistical mechanics, disordered systems and spin glasses
- Random matrix theory
- High-dimensional statistics
- Information theory, statistical inference
- Theory of machine learning, gradient-based dynamics
- Theory of message passing algorithms

Experience in the numerical implementation of machine learning algorithms in addition to the analytic skills is a plus.

The net monthly salary ranges between 2100–2,700 EUR depending on seniority. Benefits include a private health insurance, a pension contribution, special allowances for family members, competitive travel funds as well as computer equipment.

Applications and expressions of interest are welcome. Applications should include a cover letter, an updated Curriculum Vitae including the full list of publications, a statement of research interests, and two or more letters of recommendation. Applications must be submitted on-line at: https://e-applications.ictp.it/applicant/login/4298 Incomplete applications will not be considered.

Additional information about the project can be found: ***here***.

For additional enquiries and expressions of interest, please contact: ***qls@ictp.it***

Application deadline: **January 31, 2026.**