Positions

For various other job postings visit academickeys.com

A post-doc position in probability (Mean-Field descriptions or thermodynamics limits of large populations of neurons or related subjects like spin glasses) is available at INRIA in the Sophia Antipolis Méditerranée Research Center, France. More informations please visit http://www-sop.inria.fr/members/Olivier.Faugeras/index.en.html

The Department of Physics at the University of Houston seeks to fill a tenure-track Assistant professorship with a theorist specializing in statistical mechanics pending the approval by the University of Houston Board of Regents. We expect to hire at the assistant professor level, but more senior candidates may be considered. Candidates must have a strong record of scholarship and be able to establish and sustain a robust, externally funded research program. Preference will be given to those with postdoctoral experience. Candidates must also demonstrate a commitment to and potential for excellence in teaching a wide range of physics courses at both graduate and undergraduate levels, as well as in mentoring students in research. Effective communication skills are required. Applications should include: (1) a detailed cover letter describing the applicant’s background and qualifications for the position, (2) a statement of philosophy, interest, and experience in teaching, (3) a detailed statement of proposed research, including plans for involving students and for seeking external support, (4) a full curriculum vitae, including a list of publications and the names, addresses, e-mail addresses, and telephone numbers of at least three professional references. The applicants must apply at http://jobs.uh.edu

In the context of the EU H2020 project FET NANOPHLOW we are seeking 4 highly qualified post-doctoral researchers for an exciting collaborative project on the fundamental challenges of thermodynamic gradient driven transport. The postdoctoral positions will address complementary aspects related to the fundamental challenges of thermodynamic driving. The broad, theoretical approach will provide a systematic way to go beyond the state-of-the-art macroscopic descriptions of phoresis to capture the effects of the molecular nature of solvent and solute, solute size, solute and surface specificity, solute flexibility, surface wettability and heterogeneity, fluctuations and correlations.

1. The work in Barcelona will focus on the development and use of mesoscopic computational models to study the transport and rectification of soft matter and of biomolecules under strong confinement. The project will address the role of entropic transport and of capillarity in nanoscale transport mechanisms. Please contact prof I. Pagonabarraga (ipagonabarraga@ub.edu) for more information and applications.

2. The work in Sorbonne Université will focus on molecular aspects, to address surface and fluid-specific effects on the flows induced by thermodynamic gradients at solid-liquid interfaces. This includes the development of molecular simulation strategies to evaluate osmotic flows, as well as the study of systems investigated experimentally within the NANOPHLOW consortium, such as flow through nanotubes. Please contact B. Rotenberg (benjamin.rotenberg@sorbonne-universite.fr) for more information and applications.
3. The work at Paris-Sud University will be analytically oriented, with possible computational aspects depending on taste, targeting the study of thermodynamic gradient-driven phenomena. Charged as well as neutral systems will be investigated. Please contact prof. E. Trizac (emmanuel.trizac@lptms.u-psud.fr) for more information and applications.

4. The work in Utrecht will be largely based on the development of (dynamic) density functional theory for phoretic and osmotic transport through nanostructures as well as on the numerical calculation of solutions to the resulting Poisson-Nernst-Planck-Stokes-type equations of motion, where connection is to be made with ongoing experiments in the "Nanophlow" consortium. Please contact prof. R. van Roij (r.vanroij@uu.nl) for more information and applications.

Postdoctoral candidates interested in theoretical descriptions of the cytoskeleton and other problems at the interface between Soft Matter/Statistical Physics and Biology. Possible projects include theoretical investigations of the frustrated self-assembly of irregular objects as well as collaborations with Niels Holten-Andersen (MIT) to predict the viscoelastic behavior of biomimetic gels, Olivia du Roure and Julien Heuvingh (ESPCI) to study branched actin networks, Guillaume Romet-Lemonne and Antoine Jégou (Inst. Jacques Monod) to investigate formin-mediated actin polymerization and with Aurélien Roux (U. of Geneva) on protein-membrane interactions. More details at www.lptms.u-psud.fr/membres/mlenz/research

Postdoctoral position about multi-scale modeling of plasticity in amorphous solids at the PMMH laboratory at ESPCI in Paris. Motivated candidates should directly contact sylvain.patinet@espci.fr with required materials. If you know any potential candidates, please encourage them to apply too.

The School of Mathematical Sciences at Tel Aviv University invites applications for post-doctoral fellowships in Probability Theory, Statistical Mechanics and Random Function Theory. Our group includes Prof. Asaf Nachmias, Dr. Alon Nishry, Prof. Ron Peled and several post-doctoral fellows and graduate students. The position starts on October 1, 2019 and its duration is for 2 years with an option for extension up to 3 years. Shorter durations or other starting dates can be considered. Applicants should complete their Ph.D. degree by September 30, 2019. Post-doctoral fellowships are research positions and do not carry teaching responsibilities.

Candidates should e-mail the following application materials to Ms. Nurit Liberman at nuritl@tauex.tau.ac.il with cc to Prof. Ron Peled at peledron@post.tau.ac.il: CV, List of publications, Research statement, Three letters of recommendation

The deadline for applications is January 15, 2019. Applications received after the deadline will be considered if positions remain open. The positions are also announced on the MathJobs website. https://www.mathjobs.org/jobs/jobs/12549

Tenured/Tenure-Track Faculty Positions in Artificial Intelligence and Machine Learning at Rensselaer https://rpijobs.rpi.edu/postings/6917
Rensselaer is creating a research cluster in the area of Artificial Intelligence (AI) and Machine Learning (ML). We seek applications from outstanding candidates at all ranks (assistant, associate, and full professor) who will build
upon our existing strengths in these and related areas across the Schools of Science, Engineering, Humanities, Arts and Social Sciences, Management, and Architecture. These faculty members can have academic appointments in any of the five Schools at Rensselaer depending on the candidate’s background, interests, and the potential for collaboration.

Candidates with strong physics background and AI/ML expertise and applications in any sub fields of Physics are encouraged to apply.

Possible application areas include (but not limited to) statistical mechanics, condensed matter, network science, social and infrastructure networks, or complex systems.

Interested applicants should contact: Gyorgy Korniss, Professor of Physics, Department of Physics at Rensselaer Polytechnic Institute, korniss@rpi.edu (518) 276-2555 (phone) www.rpi.edu/~korniss/

We are looking for postdoctoral fellows interested in performing experimental research at the interface between physics and biology. The aim of our group is to study the collective phenomena of life through a close interplay between experimental data on biological groups in their natural environment and statistical physics methods, as correlation functions, scaling and the renormalization group. We plan to work in systems as diverse as bird flocks, insect swarms, and cell colonies. The new experimental team will have the task to develop the new data-acquisition systems (both in 3D - flocks, swarms - and 2D - stem cells), to calibrate and test the new apparatus, and to conduct the data-acquisition campaigns. A strong emphasis will be put on the comparison between theory and experiments.

The postdocs will join the COBBS Group in Rome (Collective Behaviour in Biological Systems), at the Institute for Complex Systems of the CNR, and work under the supervision of Andrea Cavagna and Irene Giardina. The duration of the positions is two years, potentially extendable. The positions will be funded by the ERC Advanced Grant RG.BIO to Andrea Cavagna. More information about our group and this project can be found at www.cobbs.it.

Applications should be sent by email to andrea.cavagna@roma1.infn.it; they should contain a cv and the contacts of senior scientists who can provide recommendation letters (only upon our request). Although there is no sharp deadline for these positions, earlier applications will naturally be given higher priority. We therefore encourage interested candidates to contact us immediately.

Two postdoctoral position at ENS de Lyon, France, at the interfaces between climate dynamics, statistical physics, machine learning and data sciences.

For the first position, the project will use machine learning approaches, in relation with rare event algorithms, in order to study climate dynamics variability and climate extremes.

For the second position, the project is to study bistability and abrupt transitions undergone by atmospheric jets, in climate dynamics. This second position will be jointly supervised with Corentin Herbert.

For both positions, applicants should have a background in physics, applied mathematics, geophysical fluid dynamics, or climate dynamics.

Applicants could contact me by email and attach a CV and contact information of scientists who can provide recommendation letters upon request. Freddy Bouchet freddy.bouchet@ens-lyon.fr

The positions are funded by the ANR-FNS French-Swiss grant PAIL (PIs : Florent Krzakala ENS-Paris, Nicolas Macris EPFL-Lausanne). The appointments are intended to start anytime from now to in the fall of 2019 and will be for 2 years.

This project on Phase diagrams and Algorithms for Inference and Learning aims at developing a better theoretical understanding of the recent advances in machine learning and high-dimensional statistics that have had a tremendous impact but call for more principled, and ideally rigorous, justifications.

This goal will be pursued in this project by building on the fruitful interplay between statistical mechanics of disordered systems, discrete mathematics and computer science that has produced a number of important results in the related fields of constraint satisfaction problems and probabilistic inference. The project is developed with Guilhem Semerjian and in collaboration with Marc Mezard, Lenka Zdeborova (CEA Saclay) and many groups in the Parisian region.

This project places an emphasis on interdisciplinarity, and aims to achieve progress by bringing together postdocs with different scientific backgrounds. More specifically, the candidates can come from different areas (Statistics and probability, theoretical physics, signal processing, applied mathematics, statistical physics, information theory, machine learning and neural networks) and are expected to bring their expertise. Successful candidates will thus conduct a vigorous research program within the scope of the project.

The members of the group also keep close contacts with other researchers of the Ecole Normale Superieure, of the University Paris-Sud and of the CEA Saclay, all of them based closed by. The ENS is conveniently located in the very center of Paris. The positions are endowed with travel and computing resources.

Keywords: Probability and statistics, Machine Learning, Signal processing, information theory, graphical models, Bayesian inference, compressed sensing, error correcting codes, spatial coupling, Belief Propagation, Message Passing, Tomography. Statistical physics - glasses, spin glasses, random optimization problems, cavity method, replica method - c, c++, matlab, julia, python.

Deadline: Apply before Jan 15, 2019

To apply, and for further information: florent.krzakala@ens.fr and [http://postdoc.krzakala.org](http://postdoc.krzakala.org)

The candidates should send their detailed cv (including list of publication, presentations, citations etc.), and 1 page letter of motivation explaining why they want to work on this subject, what is their related experience, and present a short project. Preselected candidates should be ready to provide two letters of recommendation at a later stage.

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Postdoctoral fellowship on "The Energy Landscape and Dynamics of Machine Learning Algorithms", possibly starting in the Fall 2019 (or earlier). The fellowship is for one year and is funded by the Simons collaboration "Cracking The Glass Problem". The successful candidate will work at ENS Paris under the supervision of Giulio Biroli.

She/he will belong to a team based at ENS Paris and EPFL Lausanne led by Giulio Biroli and Matthieu Wyart working on statistical physics approaches to Deep Learning. Further information about the postdoctoral position is available on the website https://scglass.uchicago.edu/postdoc-on-the-energy-landscape-and-dynamics-of-machine-learning-algorithms/
The deadline for applications is January 15, 2019.

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Postdoctoral opening in CNRS' LPTMS lab in Orsay (Paris area), with a possibility for the postdoc to spend a significant fraction of her or his time at the PMMH lab (ESPCI) in Paris. The postdoc will have the opportunity to work on the frustrated self-assembly of irregular particles, theoretical descriptions of the cytoskeleton, protein-membrane interactions and other problems at the interface between Statistical/Soft Matter Physics and Biology. She or he will be able to interact independently with the broad range of exciting biophysical activities in the area, as well as with our international collaborators. For more information visit http://lptms.u-psud.fr/membres/mlenz/PostdocOpening.pdf

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The Sackler Center for Computational Molecular and Materials Science at Tel Aviv University (http://thesacklercenter.tau.ac.il) is now receiving applications for prestigious postdoctoral positions.

Postdoctoral fellows are expected to perform leading-edge computational research focusing on the chemistry and physics of complex systems and to interact with at least one, but preferably more of the following research groups associated with the center:

Guy Cohen  http://www.tau.ac.il/~gcohen
Oswaldo Dieguez  http://www.eng.tau.ac.il/~dieguez
Moshe Goldstein  http://www6.tau.ac.il/mgoldstein
Oded Hod  http://www.tau.ac.il/~odedhod
Amir Natan  http://www.eng.tau.ac.il/~amirn
Abraham Nitzan  http://atto.tau.ac.il/~nitzan
Eran Rabani  http://www.tau.ac.il/~rabani
Shlomi Reuveni  http://shlomireuveni.weebly.com
Yair Shokef  http://shokef.tau.ac.il
Michael Urbakh  http://www.tau.ac.il/~urbakh1

Applicants should have recently completed their PhD thesis in a relevant field, in an academic institute outside Israel, or expect to complete it by March 2020.
Postdoctoral fellows joining the center are expected to start anytime between October 2019 and March 2020. They will enjoy a two-year appointment with Tel Aviv University's highest fellowship (currently, with a net pay of 137,350 Israeli Shekels (NIS) per year), plus relocation expenses (including arrival flights and if needed, temporary housing). A personal allowance of 2000 USD/year will be given for travel expenses.

Applications should be submitted online at http://thesacklercenter.tau.ac.il/fellowships.html and should include a single PDF containing:
- A cover letter.
- Curriculum vitae including a list of publications.
- A short research statement describing achievements so far as well as plans for future research.

In addition, three letters of recommendation should be sent directly to tsc@tau.ac.il:
- From the applicant's PhD advisor.
- From an established scientist who has personal acquaintance with the applicant.
- From an established scientist who has personal acquaintance with the applicant and is not from the institute where the applicant completed her/his PhD.

Review of applications will continue until the positions are filled. For primary consideration, applicants are encouraged to apply before February 1st, 2019.

The Center for Complex Networks and Systems Research (CNetS.indiana.edu) has one open postdoctoral position to study critical processes in networks of networks. The appointment starts in February 2019 for one year and is renewable for another year, subject to funding and performance. The salary is competitive and benefits are generous.

The postdoc will join a dynamic and interdisciplinary team that includes computer, physical, and cognitive scientists. The postdoc will work with Prof. Filippo Radicchi (homes.soic.indiana.edu/filiradi/).

Basic Qualifications
The ideal candidate will have a PhD in Physics or Applied Mathematics; a strong background in analysis and modeling of complex systems and networks; and solid programming skills necessary to handle big data and develop large scale simulations.

For best consideration apply by December 31, 2018 at https://indiana.peopleadmin.com/postings/7112

Interested applicants should upload a letter of interest, a CV and names and email addresses for three professional references using this application portal. Ideal start date for position: February 15, 2019

Postdoc to work on problems at the interface between statistical physics and theoretical spatial ecology. This position will be supported by our recently awarded NSF grant, R\textit{oL}:FEL\textit{S}:RA\textit{I}SE: Integrating statistical physics and nonlinear dynamics to understand emergent synchrony and phase transitions in biological systems. The ideal individual will have expertise in statistical physics including computational methods and the theory of phase transitions, as well as some experience with models of biological systems, particularly spatial ecological systems. The position will be based at UC Davis and there will be
opportunities to spend time both at the University of Massachusetts Amherst (Machta) and at Case Western Reserve University (Abbott).

The ideal start date will be between July 1, 2019 and September 1, 2019. The initial term will be 1 year with extension for up to two more years with satisfactory performance. Salary and benefits are competitive. The University of California is an Equal Opportunity/Affirmative Action Employer with a strong institutional commitment to the development of a climate that supports equality of opportunity and respect for diversity.

**Responsibilities:** Under the guidance of the PI’s, the postdoc will develop and analyze models inspired by statistical physics to describe the dynamics of spatially coupled oscillating ecological systems and use these models to understand data from ecological systems.

**How to apply:** Email a cover letter describing your background and interests in the position, cv, and contact information for 3 references to Alan Hastings (amhastings@ucdavis.edu). The position is open until filled.