Department of Physics
Royal Holloway, University of London
Egham, Surrey, TW20 0EX, United Kingdom

Postdoctoral Position in Theoretical Physics

Project: Simulating the quantum dynamics of a system of interacting particles using GPUs

For more than a century, statistical physics has proved a powerful framework for understanding the behavior of systems made of a large number of particles. Recent progress in quantum technologies have now started challenging this framework by displaying new and unpredicted equilibrium states of matter for instance with cold atoms or trapped ions. Building a theoretical framework for understanding these new macroscopic quantum states is currently a crucial question of interest both fundamentally regarding the foundations of statistical physics and also on the practical side for the applications in quantum engineering.

The aim of the project is to investigate the dynamics of strongly interacting quantum systems in order to explain the recent experimental results. After getting familiar with the recently developed mathematical tools useful for analytical calculations, the postdoctoral researcher will do High Performance Computing using Graphical Processor Units to simulate numerically the quantum dynamics of many body systems.

There are no prerequisites for this project other than a good taste for programming, e.g. in C or Python.

Scientific Environment:
The project is based in the Physics Department at Royal Holloway University of London and is funded by a grant from the Leverhulme Trust. The postdoc will have the opportunity to attend international conferences and collaborate with experimentalists.

Qualifications: PhD in Theoretical/Numerical Physics
Research area: Quantum physics - Statistical physics
Duration: up to 3 years
Starting date: to be defined
Deadline: application accepted all year round

Application: send CV and cover letter to Dr Gregoire Ithier (gregoire.ithier@rhul.ac.uk).

Contact:
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