PhD and postdoc positions
Strongly correlated quantum many-body systems
Numerical approaches

Institute of Theoretical Physics and Computational Physics
Graz University of Technology, Austria

One or more PhD and Postdoc positions will be available at our Institute as part of a project funded by the Austrian Science Fund (FWF) entitled "Correlated Mott insulators out of equilibrium: phonons, screening and heat dissipation."

Project description
The project involves theoretical and computational research for strongly correlated quantum systems out of equilibrium with particular focus on the interplay of phonons, electron correlation and heat dissipation in Mott insulators, in connection with electronic and photovoltaic applications. Optimisation procedures based on machine learning may also be involved. (see below for example publications).

Applicant profile
Candidates should have a degree in Physics, as well as excellent skills in theoretical physics and/or numerical programming (preferably C++). Ideal candidates should have a strong motivation as well as excellent skills in numerical and theoretical methods for strongly-correlated systems. For example (nonequilibrium) Green's functions, open quantum systems, dynamical mean-field theory, matrix product states. Please, point out knowledge and experience in these fields, if any. Qualified women are strongly encouraged to apply.
Research environment

The quantum many-body and computational material science division’s activity deals with theoretical investigations and numerical simulations of systems and materials in which strong correlations play an important role. The group consists of four professors, several postdocs, phd and master students working on related research topics with several cross-collaborations among the subgroups. See also here.

Starting date, selection process and appointment

The starting date is flexible (preferably in 2020) and there is no deadline for the application. The positions will be filled as soon as suitable candidates will be found. The appointment will initially be for three years for the PhD student(s) and for two years for the PostDoc, with the possibility of negotiable extensions.

How to apply

Applications with a CV (including Bachelor and Master university grades, description of research interests, names and emails of possible referees, publication list and ResearcherID if applicable, etc.) should be sent by e-mail as a single pdf file attachment to Prof. Enrico Arrigoni (arrigoni@tugraz.at). Salary is based on the FWF rates https://www.fwf.ac.at/en/research-funding/personnel-costs/

Some relevant publications


