Postdoctoral Position on Condensed Matter and Materials Theory at University of California, Santa Cruz

One postdoctoral position is available in Prof. Yuan Ping's group at University of California, Santa Cruz:
https://www.chemistry.ucsc.edu/faculty/index.php?uid=yuanping
http://yuanping.chemistry.ucsc.edu/publications

The main project is to develop first-principles open quantum dynamics based on density matrices including many-body interactions, and study spin defects in two-dimensional materials and topological materials for quantum information and spintronics applications.

Our recent works on the main project are the following:

"Spin-phonon relaxation from a universal ab initio density-matrix approach", https://arxiv.org/abs/1910.14198 (just accepted in Nature Communications)

"First-principles engineering of charged defects for two-dimensional quantum technologies", https://journals.aps.org/prmaterials/abstract/10.1103/PhysRevMaterials.1.071001

"Dimensionality and anisotropicity dependence of radiative recombination in nanostructured phosphorene", https://pubs.rsc.org/en/content/articlelanding/2019/TC/C9TC02214G#!divAbstract

"Carrier recombination mechanism at defects in wide band gap two-dimensional materials from First principles", https://journals.aps.org/prb/abstract/10.1103/PhysRevB.100.081407

A related review paper on many-body perturbation theory with efficient numerical techniques:
http://pubs.rsc.org/en/content/articlelanding/2013/cs/c3cs00007a#!divAbstract

Other projects within the Ping group's interest can be also supported, including studying defects and polaronic conduction in transition metal oxides and perovskite halides from first-principles.

QUALIFICATIONS: Candidates with a strong background in condensed matter physics/materials theory, numerical implementations for first-principles methods, with a Ph.D. in the relevant fields are encouraged to apply. Preference will be given to candidates who have experience with method development and code implementation for electronic structure theory such as Green's function based methods (GW/BSE, NEGF, DMFT), TDDFT, electron-phonon couplings, spin dynamics, and ultrafast dynamics for solid state systems.

TO APPLY: Applicants should send their CV, research introduction and contact information of three references to yuanping@ucsc.edu. The position will remain open until filled.

TERM OF APPOINTMENT: This position is funded for three years, with the possibility of continuation contingent on positive performance review and available funding. Given the situation of Covid-19, the starting date can be negotiable and temporary remote working is possible as well.

SALARY AND BENIFITS: They are in line with the University of California Standards. More details can be inquired from Yuan Ping (yuanping@ucsc.edu).