

Graduate Research Assistantship & Postgraduate Research Opportunity

Condensed Matter Theory Group, BNL

Ambitious students and a postdoc with good physical intuition are needed to conduct frontier research in theoretical investigation of electronic, optical, and magnetic properties of condensed matters, in particular electronic correlated materials that are of interest in energy applications. Projects also include development of novel theoretical/numerical approaches to properly treat disordered impurities, excitations, and localized quantum many-body interactions in "strongly correlated materials" (eg: High-temperature superconductors), in close collaboration with several other world-leading groups in various fields.

The planned research should prove to be highly beneficial for the students' future career. (To give a rough measure, my former student, Tom Berlijn has first-authored two PRLs and co-authored four other PRLs in the past two years.) The students will exercise quantum many-body theories (time-dependent density functional theory, perturbation theory, and renormalization group) for practically important functional materials, and develop new state-of-the-art numerical approaches, based on parallel computation to be performed in DOE supercomputer centers and local Beowulf clusters. They will also be exposed to the professional environment of the national lab and learn to interact closely with experimentalists.

For more detail, see <http://www.cmth.bnl.gov/~weiku/>
or contact Dr. Wei Ku via email: weiku@bnl.gov

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