Two postdoc positions are available at the University of Southern California in Los Angeles to work with Anna Krylov (Department of Chemistry, http://iopenshell.usc.edu) and Rosa Di Felice (Department of Physics and Astronomy, https://dornsife.usc.edu/labs/compbionano). The positions are funded by the US Department of Energy under the “Q^4Q: Quantum Computation for Quantum Prediction of Materials and Molecular Properties” award and are available starting from January 2019. Each appointment is initially for one year and could be extended up to a total of three years upon mutual agreement.

The main focus of research will be on mapping and solving the calculation of quantum properties of strongly correlated materials and molecules on quantum computers available to the scientific community. We plan to use (i) the D-Wave installed at USC for adiabatic quantum optimization; and (ii) the cloud-available IBM and Rigetti qubit arrays and virtual machines for circuit-model quantum computation of spin Hamiltonians (e.g., for molecular magnets) and configuration interaction Hamiltonians. We are also planning quantum software development to facilitate and optimize the treatment of molecular systems.

We are looking for candidates with theoretical background and research experience in many-body theory (especially, electron correlation), willing to use quantum computing hardware and software. Any level of prior practice with quantum hardware and/or software (OpenFermion, pyQuil, Qiskit) is considered an asset. Successful candidates should hold a Ph.D. degree in Physics, Chemistry, Engineering, Computer Science, or related disciplines. Candidates from all over the world are invited to inquire by sending an email with a short research statement, CV and 2 names of reference people to difelice@usc.edu and anna.i.krylov@gmail.com.