

## **Post-Doc Position in Experimental Quantum Metamaterials**

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We have a post-doc position available in the Anlage lab beginning this fall. The project is on the physical properties of Quantum Metamaterials and is funded by DOE/BES. The goal is to explore collective behavior of coupled superconducting qubits in quantum transmission line structures as a model of quantum condensed matter. The project builds on our earlier work on rf SQUID metamaterials and their collective properties (<http://anlage.umd.edu/AnlageSCNIR.htm>). A brief description of the project is given below. We are looking for a candidate with a Ph.D. in Experimental Physics, who is (ideally) trained in condensed matter, low-temperature and/or device physics techniques, and interested in leading this new project. This project could offer an entry into the field of superconducting quantum information science for those that are so motivated. Please have interested candidates contact me directly with a CV and list of references.

### **Project Summary**

We are on the cusp of creating artificial quantum matter through engineered structures that mimic natural atoms and create new electronic and electromagnetic behavior not observed in nature. Our objective is to explore new quantum states of matter through creation of engineered quantum meta-atoms and their arrangement into structures that create qualitatively new types of quantum coherent behavior, especially in terms of their interaction with electromagnetic fields. The technical approach involves assembly of superconducting quantum devices that are nominally identical and strongly interacting with each other, and with a bath of microwave photons, and measuring their emergent behavior through electromagnetic response. The results will give fundamental insights into the nature of condensed matter and specific outcomes include investigation of proposed but un-realized states of matter, emergent quantum phenomena, and controlled super-radiant behavior.