

Postdoc (Experiment) – Superconducting Qubits for Analog Quantum Simulation and Sensing - Purdue

We are looking for an **experimental postdoctoral researcher** to join the **superconducting quantum circuit group** led by **Assistant Professor Alex Ruichao Ma**, at the Department of Physics and Astronomy, **Purdue University**.

Group website: www.ma-quantumlab.com

About the position –

We are a young research group focused on quantum many-body physics and quantum information sciences using the tools of circuit QED in superconducting circuits. One current project explores the efficient and robust generation of entanglement by making use of engineered dissipation. In another collaborative project we are developing SC qubits and hybrid devices to probe and control excitations in real quantum materials.

You are expected to actively participate and help lead *all* efforts in the lab. You will be responsible for: plan and execute experiments; perform modeling and simulations; work with students on fabrication, set up hardware and software control systems, cryogenic and microwave measurements, and all data taking and analysis. You will write papers. You will also assist in preparing progress reports and grant proposals.

Above all, you are expected to not only take ownership of your research and achieve good progress, but also to take a significant leadership role in the team and start preparing yourself as an independent leader.

Qualities we seek –

- Experimental PhD in AMO physics, condensed matter physics, or other relevant quantum science and engineering fields.
- Experience building and working with complex experimental systems.
- High level of understanding in quantum mechanics, quantum optics, and solid-state physics.
- Strong motivation and dedication to push the frontiers of experimental physics – the ability to “get things done”; Commitment to being a team player and work collaboratively; Leadership skills to teach and mentor students at different levels.
- Expertise in any of the following is a plus but not required: Circuit QED (superconducting circuits); Cryogenics; Nanofabrication; Microwave/RF control; Hardware and software control systems for complex experiments (think at least >20 custom I/O channels); Hardware interfacing in Python.

We offer you –

- State-of-the-art circuit QED infrastructure.
- Excellent prospects for scientific outcome in the next few years.
- Work very closely with PI, and with highly motivated students in a young team.
- Support and mentoring for you to grow both as an independent scientist, and as an independent leader; other support and resources for career development.
- Travel to at least one conference each year to present and promote your research.
- Competitive salary and benefits. Purdue is located in West Lafayette, Indiana, a small but lively college town with convenient and easy access to major metropolitans (1 hrs from Indianapolis, 2 hrs from Chicago). Check out: <https://twitter.com/LifeAtPurdue>.
- The postdoc position is open now. The starting date can be as early as Jan 2022 but is negotiable. Initial contract will be for 1 year, renewable annually based on satisfactory progress for up to 4 years.

To apply –

To apply, please email maruichao@purdue.edu with your current CV, names and contact info for 3 references, and a cover letter. In the letter, please briefly describe your motivation, experiences and interests, and why you think this position is a good fit for you.