

Opportunity Title: ARL-West: Topological Materials and Interfacial Coupling for Electronic Device Application

Opportunity Reference Code: ARL-R-SEDD-2317393203

Organization U.S. Army

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How to Apply [You can apply for this project directly at this link.](#)

Description The U.S. Army Research Laboratory (ARL) seeks a highly motivated, well informed, cross-disciplinary and skilled postdoctoral fellow with experience in the synthesis and fabrication of high quality topological, magnetic materials and heterostructures, and in electrical and magnetic characterization techniques. This postdoctoral fellow will investigate controls for physical processes that underlie theoretical descriptions of concept topological electronic devices (TEDs) for efficient electronics, sensors, and/or radio frequency (RF) technologies and demonstrate them. This postdoctoral fellow will shepherd the interface between government and academia, stationed in the laboratory of Dr. Kang Wang at UCLA and collaborate with other ARL researchers pursuing similar goals.

ARL is accelerating a strategic initiative to move the physics of topological materials to the engineering of emerging electronic devices that may solve future battlefield challenges with ultra-efficient electronics and RF technology, and equivalently may advance related civilian technology. Theorists have model a number of diverse device concepts that numerically promise to far exceed today's state of the art for things such as sensing, sub-threshold switching with markedly reduced energy consumption, energy harvesting and radio frequency or even THz electronics. Many of these opportunities can take advantage of topological surface currents and spin-orbit coupling at room temperature even with today's imperfect materials. This fellowship is a unique opportunity to take full advantage of ARL's strategic intra-extramural reach with a seamless collaboration among ARL laboratories, extended campuses and leading academic scientists. Success will be defined by demonstrating underlying phenomena above cryogenic temperatures revealing that theoretically proposed concepts are viable.

Currently, the gap between today's knowledge and tomorrow's technology in this area lies in the device physics that spans the fundamental physics and the electronics engineering. Extramural research has established the opportunity theoretically and some nascent experimental efforts have begun.

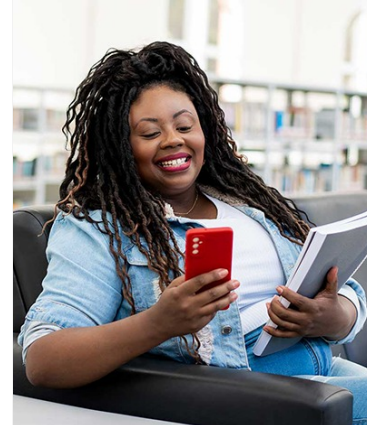
This postdoctoral fellow will take advantage of years of expertise developed in Dr. Wang's laboratory to build, test and study nascent conceptual device designs.

For general inquiries, please mail charles.c.rong.civ@mail.mil.

Qualifications [Please review eligibility for the Army Research Lab \(ARL\) Research Associateship Program \(RAP\) on the program website.](#)



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- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
 - **Degree:** Doctoral Degree.
 - **Discipline(s):**
 - **Engineering** ([27](#) 👁)
 - **Physics** ([16](#) 👁)