

Opportunity Title: Magnetic Superconducting Digital Electronics

Opportunity Reference Code: ICPD-2025-39

Organization Office of the Director of National Intelligence (ODNI)

Reference Code ICPD-2025-39

How to Apply **Create and release your Profile on Zintellect** – Postdoctoral applicants must create an account and complete a profile in the on-line application system. **Please note: your resume/CV may not exceed 3 pages.**

Complete your application – Enter the rest of the information required for the IC Postdoc Program Research Opportunity. The application itself contains detailed instructions for each one of these components: availability, citizenship, transcripts, dissertation abstract, publication and presentation plan, and information about your Research Advisor co-applicant.

Additional information about the IC Postdoctoral Research Fellowship Program is available on the program website located at: <https://orise.orau.gov/icpostdoc/index.html>.

If you have questions, send an email to ICPostdoc@orau.org. Please include the reference code for this opportunity in your email.

Application Deadline 2/28/2025 6:00:00 PM Eastern Time Zone

Description **Research Topic Description, including Problem Statement:**

The interplay between superconducting and magnetic materials has led to interesting prospects in the realm of superconducting devices, including superconducting diodes, pi junctions, spin valves, and other junctions with magnetic barrier layers. This postdoctoral opportunity is to study the basic physics of superconductors in proximity to magnetic materials from either an experimental or theoretical approach with an eye towards device applications.

Example Approaches:

Magnetics in superconducting digital electronics:

1. Novel magnetic Josephson Junctions
2. Non-reciprocal effects in superconductors
3. Novel applications enabled by magnetic materials
4. Study of material considerations in joint magnetic/superconducting devices

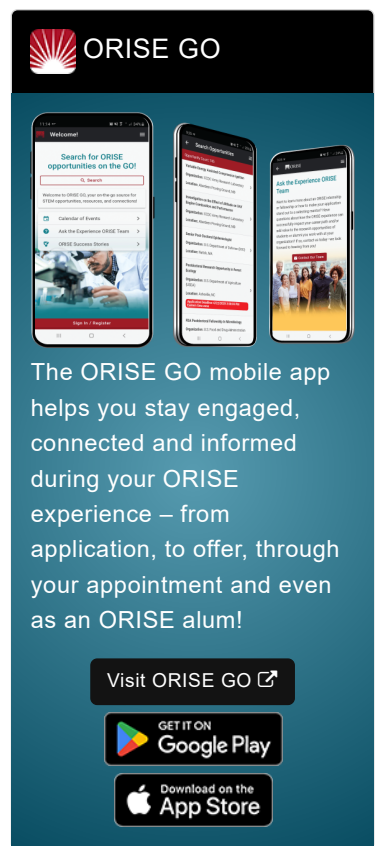
Relevance to the Intelligence Community:

High Performance Computing

Key Words: SFQ, RSFQ, Single flux Quantum, superconducting digital logic, EDA, Magnetic, memory


Qualifications **Postdoc Eligibility**


- U.S. citizens only
- Ph.D. in a relevant field must be completed before beginning the appointment and within five years of the appointment start date
- Proposal must be associated with an accredited U.S. university, college, or U.S. government laboratory




ORISE GO

The ORISE GO mobile app helps you stay engaged, connected and informed during your ORISE experience – from application, to offer, through your appointment and even as an ORISE alum!

Visit ORISE GO 

GET IT ON
 Google Play

Download on the
 App Store

Opportunity Title: Magnetic Superconducting Digital Electronics

Opportunity Reference Code: ICPD-2025-39

- Eligible candidates may only receive one award from the IC Postdoctoral Research Fellowship Program

Research Advisor Eligibility

- Must be an employee of an accredited U.S. university, college or U.S. government laboratory
- Are not required to be U.S. citizens

Point of Contact [Keri Tarwater](#)

Eligibility • **Citizenship:** U.S. Citizen Only

Requirements • **Degree:** Doctoral Degree.

- **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#))
 - **Communications and Graphics Design** ([3](#))
 - **Computer, Information, and Data Sciences** ([17](#))
 - **Earth and Geosciences** ([21](#))
 - **Engineering** ([27](#))
 - **Environmental and Marine Sciences** ([14](#))
 - **Life Health and Medical Sciences** ([45](#))
 - **Mathematics and Statistics** ([11](#))
 - **Other Non-Science & Engineering** ([2](#))
 - **Physics** ([16](#))
 - **Science & Engineering-related** ([1](#))
 - **Social and Behavioral Sciences** ([30](#))