

Opportunity Title: Solid-State Chip-Scale Electronics Cooling

Opportunity Reference Code: ICPD-2025-50

Organization Office of the Director of National Intelligence (ODNI)

Reference Code ICPD-2025-50

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 3/4/2025 11:00:00 AM Eastern Time Zone

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

With the growth of AI and cloud computing requirements, power and cooling needs in microelectronics continue to grow in tandem. Heat removal is typically handled at the bulk chip or component level and subsequently aggregated and rejected to the environment which can lead to non-uniformities (i.e. hot spots). This topic seeks novel approaches toward the design and manufacturing of solid-state sub-chip electronics-integrated cooling that can efficiently extract and reject heat thereby improving overall computation power use efficiency.

Example Approaches:

Optical cooling, chip-embedded thermoelectric, heat exchangers, co-fabrication of cooling and integrated circuit assemblies

Relevance to the Intelligence Community:

Power & Energy, high performance computing

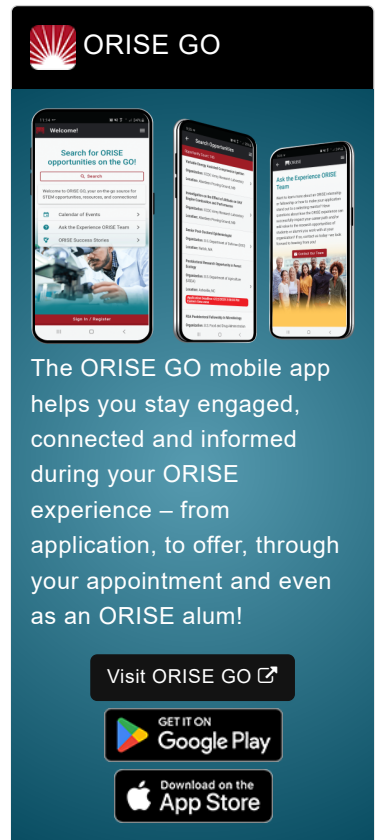
Key Words: electronics cooling, power use efficiency, solid state cooling, thermoelectrics, microelectronics manufacturing, heat exchangers, optical cooling

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





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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](#)

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
 - **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](#))