

Opportunity Title: Foundations of next-generation electrospray propulsion

Opportunity Reference Code: IC-16-23

Organization Office of the Director of National Intelligence (ODNI)

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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 2 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.

Application Deadline 4/15/2016 6:00:00 PM Eastern Time Zone

Description Electrospray propulsion systems operate by emitting ionic species or droplets of ionic liquid ion sources (molten salts) through a Taylor cone extraction process at moderate voltages (<2kW). This is typically facilitated by a preformed tip.




This research project is focused on developing new methods for Taylor cone emission (such as improved emitter fabrication) and synthesis and/or evaluation of the performance of novel ionic liquids to enable high thrust density arrays (>100mN/m²).

The goal of this effort is to demonstrate pathways to systems with 10-100X state-of-the art (>1-10 N/m²).

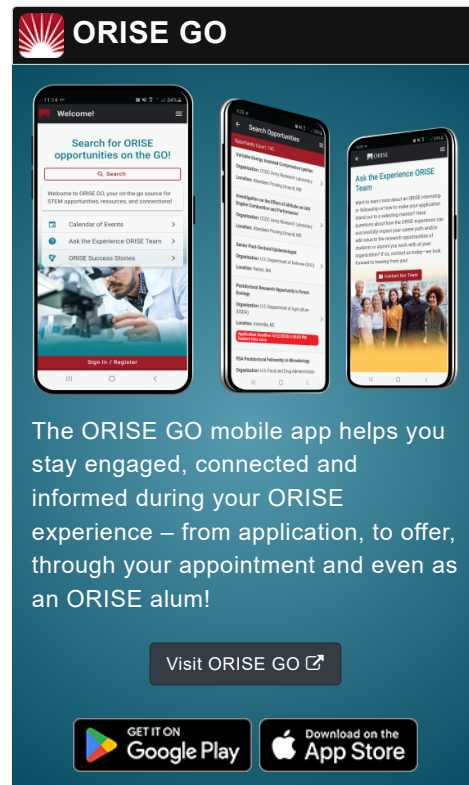
Example Approaches

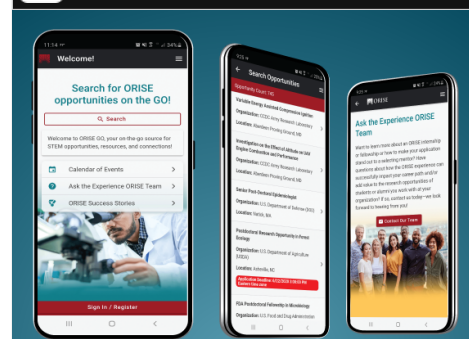
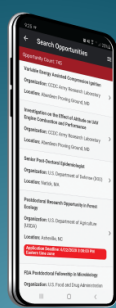
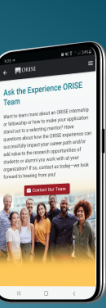
Example approaches include single-emitter fabrication, space charge simulation, and small-scale demonstration of an operating thruster array.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Business** (11 )
 - **Chemistry and Materials Sciences** (12 )
 - **Communications and Graphics Design** (6 )
 - **Computer, Information, and Data Sciences** (16 )
 - **Earth and Geosciences** (21 )
 - **Engineering** (27 )
 - **Environmental and Marine Sciences** (14 )
 - **Life Health and Medical Sciences** (45 )
 - **Mathematics and Statistics** (10 )
 - **Other Non-Science & Engineering** (13 )
 - **Physics** (16 )





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- **Science & Engineering-related** (1 )
- **Social and Behavioral Sciences** (28 )