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/m^2).

The goal of this effort is to demonstrate pathways to systems with 10-100X state-of-the art (>1-10 N/m^2).

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