

**Opportunity Title:** Foundations of next-generation electrospray propulsion

**Opportunity Reference Code:** IC-16-23

**Organization** Office of the Director of National Intelligence (ODNI)

**Reference Code** IC-16-23

**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<sup>2</sup>).


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

#### Example Approaches


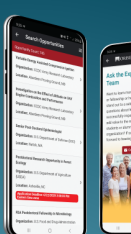

Example approaches include single-emitter fabrication, space charge simulation, and small-scale demonstration of an operating thruster array.

- 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](#) )







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