

Opportunity Title: Methods for High-throughput Energetic Characterization
Opportunity Reference Code: ICPD-2023-42

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.

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

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

Application Deadline 2/28/2023 6:00:00 PM Eastern Time Zone

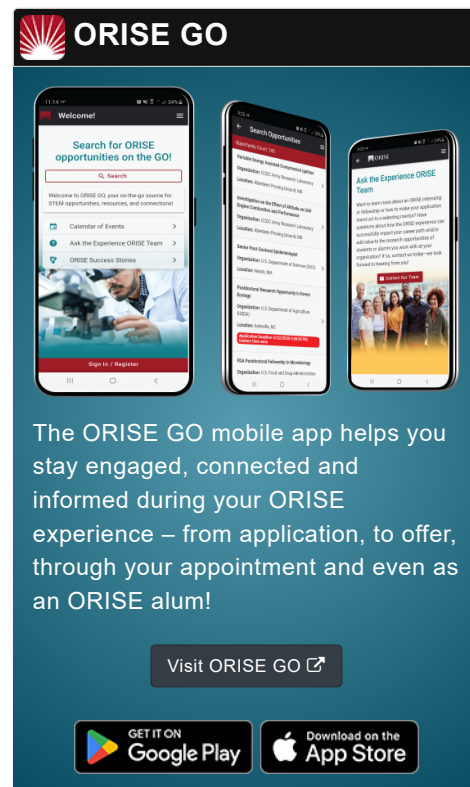
Description **Research Topic Description, including Problem Statement:**

Characterization of energetic material stability, reactivity and energy content is often a slow process that requires relatively large quantities of material and meticulous manual preparation. Tests rely heavily on human skill and dexterity during the data acquisition stage, leaving them open to systematic, batch-to-batch and error-driven variation. They are also difficult to automate directly since these tests have been designed around humans, maximizing simplicity, and safety for the user. In a future that utilizes automated discovery and high throughput testing of functional materials, this would provide a bottleneck for rapid screening of new candidates. Therefore, new methods are sought that would accelerate this vital stage in the materials development pipeline. Human-led test methods would then be reserved for full characterization of only those candidates of the highest potential to enable greater scrutiny and assurance of their characteristics.

Example Approaches:

Development of new or enhanced analytical methods capable of linking molecular or material structure to stability, reactivity, or energetic material performance. These methods should be amenable to inline or higher-throughput analysis that would be suited to screening candidate functional materials.

Development of an automated system that incorporates existing technologies or processes in a more streamlined overall process



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that combines rapid characterization of potential energetic materials with their synthesis. This process should be compatible with greater automation and high-throughput analysis of candidate materials.

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 application deadline
- 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 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

Key Words: Energetic Materials, Energetic Materials, Analytical chemistry, Automation, Robotics, High-throughput screening, Materials science, Chemistry

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (12 )
 - **Communications and Graphics Design** (6 )
 - **Computer, Information, and Data Sciences** (17 )
 - **Earth and Geosciences** (21 )
 - **Engineering** (27 )
 - **Environmental and Marine Sciences** (14 )
 - **Life Health and Medical Sciences** (48 )
 - **Mathematics and Statistics** (11 )
 - **Other Non-Science & Engineering** (2 )
 - **Physics** (16 )
 - **Science & Engineering-related** (1 )
 - **Social and Behavioral Sciences** (29 )