

Opportunity Title: Spectral Temporal Imaging of Highly Energetic Events

Opportunity Reference Code: ICPD-2020-23

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.

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

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

Application Deadline 2/28/2020 6:00:00 PM Eastern Time Zone

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

The goal of this research is to improve understanding of physical and chemical evolution during highly energetic atmospheric events such as meteors or bolides.

Meteors and bolides produce luminous events that can be spectrally and temporally imaged in the visible (VIS) through infrared (IR) to improve understanding of atmospheric and materials chemistry in highly energetic regimes. In addition, modern VIS/IR spectrometers and high frame rate cameras enable imaging at enhanced fidelity and resolution, and advances in analysis methods would improve characterization of an event. Improved modeling tools that predict emission and absorption spectra for these events could also help with interpretation of observed phenomena.

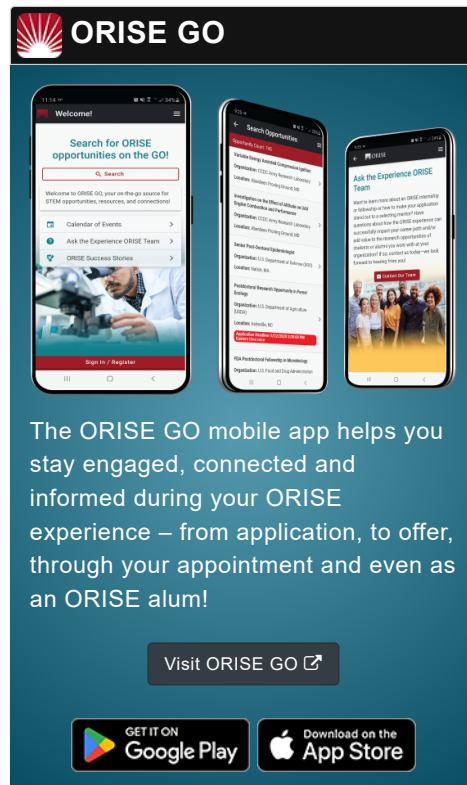
Example Approaches:

Using these spectral temporal imaging technologies, one approach could be to develop advanced analysis methods to enable better understanding of evolution of atmospheric chemical species and interactions. Another approach could be to develop forward models to predict emission and absorption spectra from these events and compare with observations. Another approach could be a combination of forward and inverse modeling that can be compared with observations.

Relevance to the Intelligence Community:

Improved understanding of atmospheric chemistry using spectral temporal data will enhance the Intelligence Community's ability to characterize highly energetic events.

Key Words: Spectral Temporal Imaging of Highly Energetic Events



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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

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (12 )
 - **Communications and Graphics Design** (2 )
 - **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** (2 )
 - **Physics** (16 )
 - **Science & Engineering-related** (1 )
 - **Social and Behavioral Sciences** (27 )