

Opportunity Title: Associating Fabricated Parts and 3-Dimensional Printing

Machines from Toolmarks

Opportunity Reference Code: ICPD-2022-06

Organization Office of the Director of National Intelligence (ODNI)

Reference Code ICPD-2022-06

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.orau.gov/icpostdoc/index.html>.

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

Application Deadline 2/28/2022 6:00:00 PM Eastern Time Zone

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

Limited understanding of nozzle manufacturing, toolmarks present, effects of wear and life expectancy. Limited research involving additive manufacturing (AM) to determine if individual characteristics exist and persist to provide evidence of common source.

Example Approaches:

Utilization of traditional forensic firearms/toolmark examinations to determine class and individual characteristics from AM to determine common source

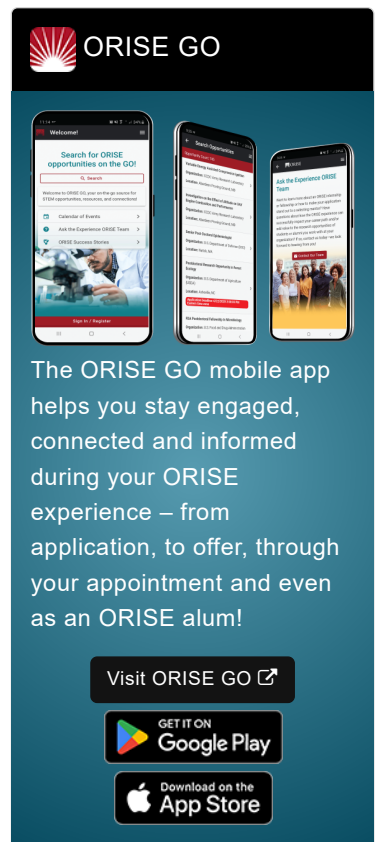
Relevance to the Intelligence Community:

With increased use of AM to produce viable substitutes for traditional manufacturing, it will be relevant for the Intelligence Community to be able to recognize the method being utilized and potentially determine common source for manufacturing - AM was produced by a specific nozzle due to the persistence on individual characteristics from manufacturing toolmarks.

Key Words: Additive Manufacturing, 3- Dimensional Printing, 3D, Fused Filament Fabrication (FFF), Fused Depositional Modeling (FDM), Material Extrusion, Nozzles, Toolmark Identification


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




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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](#))