

Opportunity Title: FDA CDRH Fellowship in Evaluating Spectral X-ray scattering CT Prototype for Brain Imaging
Opportunity Reference Code: FDA-CDRH-2023-07

Organization U.S. Food and Drug Administration (FDA)
Reference Code FDA-CDRH-2023-07
How to Apply *Connect with ORISE...on the GO!* Download the new ORISE GO mobile app in the [Apple App Store](#) or [Google Play Store](#) to help you stay engaged, connected, and informed during your ORISE experience and beyond!

A complete application consists of:

- An application
- Transcripts – [Click here for detailed information about acceptable transcripts](#)
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- One educational or professional recommendation. Your application will be considered incomplete and will not be reviewed until one recommendation is submitted.

All documents must be in English or include an official English translation.

If you have questions, send an email to ORISE.FDA.CDRH@rau.org. Please include the reference code for this opportunity in your email.

Application Deadline 4/30/2023 1:47:45 PM Eastern Time Zone

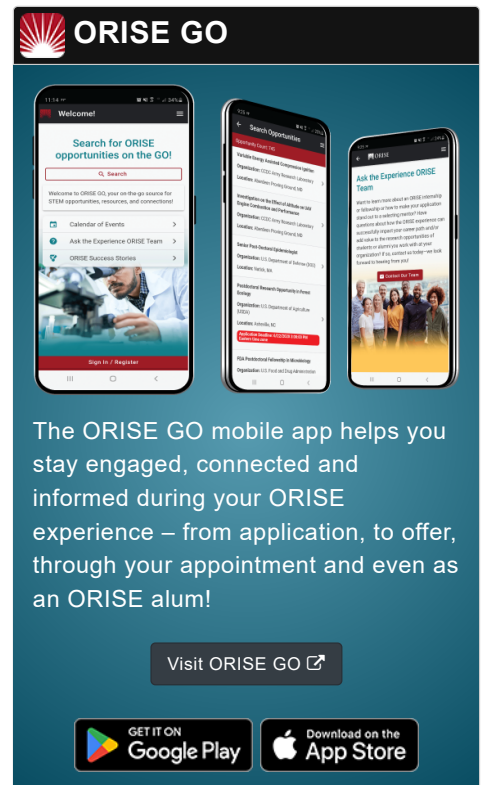
Description *Applications will be reviewed on a rolling-basis.

A research opportunity is available in the Office of Science and Engineering Laboratories (OSEL), within the Center for Devices and Radiological Health (CDRH), Food and Drug Administration (FDA) located in Silver Spring, Maryland.

The project will lead regulatory science efforts in experimental and computational methods for the assessment of emerging x-ray imaging technologies including spectral and scattering modes. The fellow will be part of a project that will develop spectral x-ray scattering CT prototype for brain imaging in Alzheimer's disease. This effort is centered on the characterization of small-angle x-ray scattering (SAXS) signatures from protein aggregates in the brain associated with neurodegenerative diseases including Alzheimer's using tomographic imaging, photon-counting detectors, and polychromatic x-ray sources. The goal of the effort is to contribute to the regulatory science of emerging imaging technologies for quantifying biomarkers in neurodegenerative diseases and prepare the Agency for the evaluation of related products.

Participant Learning Objectives:

- Gain expertise in developing and characterizing a prototype x-ray CT system using spectral and scattering methods for tomographic brain imaging.



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- Learn to independently evaluate emerging x-ray imaging technologies using photon-counting detectors as a biomarker quantification tool and learn about regulatory science at FDA.
- Collaborate with a diverse group of scientists from FDA, academia, and industry and actively present in conference and publish in peer reviewed journals.

Anticipated Appointment Start Date: March 2023; start date is flexible

This program, administered by ORAU through its contract with the U.S. Department of Energy to manage the Oak Ridge Institute for Science and Education, was established through an interagency agreement between DOE and FDA. **The initial appointment is for one year, but may be renewed upon recommendation of FDA contingent on the availability of funds.** The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. The appointment is full-time on-site for laboratory research at FDA in the Silver Spring, Maryland, area. Participants do not become employees of FDA, DOE or the program administrator, and there are no employment-related benefits.

Completion of a successful background investigation by the Office of Personnel Management (OPM) is required for an applicant to be on-boarded at FDA. OPM can complete a background investigation only for individuals, including non-US Citizens, who have resided in the US for a total of three of the past five years.

FDA requires ORISE participants to read and sign their FDA Education and Training Agreement within 30 days of his/her start date, setting forth the conditions and expectations for his/her educational appointment at the agency. This agreement covers such topics as the following:

- Non-employee nature of the ORISE appointment
- Prohibition on ORISE Fellows performing inherently governmental functions
- Obligation of ORISE Fellows to convey all necessary rights to the FDA regarding intellectual property conceived or first reduced to practice during their fellowship
- The fact that research materials and laboratory notebooks are the property of the FDA
- ORISE fellow's obligation to protect and not to further disclose or use non-public information

Qualifications The qualified candidate should have received a master's or doctoral degree in one of the relevant fields (i.e. Engineering, Physics, Optics, Material Science, Mathematics, Computer Science). Degree must have been received within the past five years.

Preferred candidate should have some of the following experience:

- Custom experimental setup or benchtop (optical or x-ray)

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system design and instrumentation for tomographic imaging.

- Image reconstruction in CT, MRI, PET/SPECT, or other emerging imaging modalities such as phase-contrast or darkfield CT.
- LabVIEW programming for hardware control and data acquisition.
- Programming with MATLAB or Python or others for data and image analysis.
- Familiarity with photon-counting detectors (PCD) and the physics of photon transport.
- Demonstrated track record of scientific independence and collaborative research.

Eligibility Requirements

- **Degree:** Master's Degree or Doctoral Degree received within the last 60 month(s).
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (1 )
 - **Computer, Information, and Data Sciences** (17 )
 - **Engineering** (27 )
 - **Life Health and Medical Sciences** (4 )
 - **Mathematics and Statistics** (11 )
 - **Physics** (16 )
 - **Science & Engineering-related** (1 )
- **Age:** Must be 18 years of age

Affirmation

Have you lived in the United States for at least 36 out of the past 60 months? (36 months do not have to be consecutive.)