Opportunity Title: USDA-ARS Postdoctoral Fellowship in Chemistry using Nuclear Magnetic Resonance
Opportunity Reference Code: USDA-ARS-2022-0202

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2022-0202

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
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Click here for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations

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

Application Deadline 7/6/2022 3:00:00 PM Eastern Time Zone

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

ARS Office/Lab and Location: A research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), at the Eastern Regional Resource Center (ERRC) located in Wyndmoor, Pennsylvania.

The ARS is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision of the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: The mentor's research primarily focuses on developing value-added products from low value biomass. Biomass can include plant or animal residues or any other waste materials such as food or municipal waste. The research involves extraction, modification of low value waste materials and their derivatives. Physical, chemical and instrumental analysis of raw materials and finished products are essential to determine the structural characteristic and properties of the compounds.

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The selected research participant will be involved in identification and quantification of the extracted or modified products with the determination of structural integrity of the compounds. Nuclear Magnetic Resonance (NMR) will be used as the primary tool for structure determination and quantitative analysis of the compounds. Within certain constraints, the participant will have considerable freedom to determine how the project goals will be achieved. The research is primarily laboratory based, but pilot plant experiments are also conducted. The participant will conduct research under the mentorship of Dr. Sarker.

Learning Objectives: As a result of this training, the Participant will have the opportunity to develop their skills on operating HPLC, GC-MS, Preparative HPLC and many other analytical instruments, gather knowledge on developing new methods for chemical analysis, and develop skills on new functional lipid synthesis.

Mentor(s): The mentor(s) for this research opportunity is Majher Sarker (majher.sarker@usda.gov). If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for six months, but may be renewed upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant(s) will receive a monthly stipend commensurate with educational level and experience.

Citizenship Requirements: This opportunity is available to U.S. citizens only.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. However, this position requires a pre-employment check and a full background investigation. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

This is an equal opportunity program open to all qualified individuals without regard to race, color, age, sex, religion, national origin, mental or physical disability, genetic information, sexual orientation, or covered veteran's status.

Questions: Please visit our Program Website. After reading, if you have additional questions about the application process please email USDA-ARS@orau.org and include the reference code for this opportunity.

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Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields of study, or be currently pursuing the degree with completion by the appointment start date.

Preferred Skills:

- Advanced NMR skills
- Skills on two dimensional NMR analysis
- Other analytical skills such as, GC-MS, FTIR, DSC, TGA

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (2)