

**Opportunity Title:** USDA-ARS Postdoctoral Fellowship in Agricultural Engineering

**Opportunity Reference Code:** USDA-ARS-2020-0198



**Organization** U.S. Department of Agriculture (USDA)

**Reference Code** USDA-ARS-2020-0198

**How to Apply** 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
- Two educational or professional recommendations

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

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**Application Deadline** 2/15/2021 3:00:00 PM Eastern Time Zone

**Description** \*Applications are reviewed on a rolling-basis and this posting could close before the deadline.

**ARS Office/Lab and Location:** A research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), National Poultry Research Center located in Athens, Georgia.

**Research Project:** This research project focuses on developing nondestructive sensors for measurement of quality parameters poultry meat, grain, seed, nuts, and feed. These sensors are designed to be implemented on-line for real-time measurements of quality attributes of interest to consumers, farmers, and inspectors.

Under the guidance of a mentor, the participant will be trained on calibrating and using laboratory grade instrumentation for measurement of the dielectric properties of poultry meat over a broad radio-frequency range from 200 MHz to 50 GHz. After collecting and organizing the data, the participant will use statistical and numerical techniques to analyze the dielectric response of poultry meat with the focus on identifying correlations between the dielectric properties and physical properties of interest including water holding capacity and texture properties. The participant will participate in the development of smart microwave sensors for rapid assessment of quality attributes of poultry meat with the objective of discriminating between normal poultry meat and meat presenting abnormalities such as white striping and woody breast. Also, the participant will be trained in testing and calibrating of in-house built microwave sensors for in-process measurements on poultry meat.

**Learning Objectives:** Throughout the course of this research project, the participant will gain experience in the development of smart microwave sensors from laboratory concept to prototype testing. This solid engineering background will be advantageous to the participant in their future career.

**Mentor(s):** The mentor for this opportunity is Samir Trabelsi ([samir.trabelsi@usda.gov](mailto:samir.trabelsi@usda.gov)). If you have questions about the nature of the research please contact the mentor(s).

**Anticipated Appointment Start Date:** Winter 2021. Start date is flexible and will depend on a variety of factors.

**Appointment Length:** The appointment will initially be for one year, 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, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the [Guidelines for Non-U.S. Citizens Details page](#) of the program website for information about the valid immigration statuses that are acceptable for program participation.

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**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. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

**Questions:** Please visit our [Program Website](#). After reading, if you have additional questions about the application process please email [USDA-ARS@ornl.gov](mailto:USDA-ARS@ornl.gov) and include the reference code for this opportunity.







## Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields, or be currently pursuing the degree with completion by January 2021.

Preferred skills:

- Experience with measurements on poultry meat
- Knowledge in measurements and sensors for the characterization of foods and agricultural products
- Educational background in the following: electronics, basics of microprocessors, electromagnetics, programming, statistics, numerical modeling, and/or thermodynamics

## Eligibility Requirements

- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Communications and Graphics Design** (2 )
  - **Computer, Information, and Data Sciences** (3 )
  - **Engineering** (3 )
  - **Life Health and Medical Sciences** (4 )
  - **Mathematics and Statistics** (5 )
  - **Physics** (2 )