

Opportunity Title: Bio-based Product Development Postdoctoral Research

Opportunity

Opportunity Reference Code: ARS-BOACRU-2015-0127

Organization U.S. Department of Agriculture (USDA)

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How to Apply A complete application package 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. Selected candidate must provide proof of completion of the degree before the appointment can start. Proof must be sent to ORISE directly from the academic institution including graduation date and degree awarded. All transcripts must be in English or include an official English translation.
- A current resume/CV

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

Description A Bio-based Product Development Postdoctoral Research Opportunity is available with the U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS) Biobased and Other Animal Co-Products Research Unit (BOACRU) in Wyndmoor, Pennsylvania.

The Principal Investigator's (PI) research group is primarily engaged in developing bio-based flocculants. Flocculants are substances that aid in clarifying water by causing suspended contaminants to settle. Many commercial flocculants are fossil-fuel based polymers. The flocculants being developed are made from by-products of the meat industry, specifically blood and rendered protein. The group is focused on three types of problems:

- Developing inexpensive processes for transforming the raw material into the product
- Improving the performance of the product
- Adapting the technology to meet the needs of different types of end-users

The participant's research will relate to improving the flocculant performance through application of known chemical modifications to flocculant protein, testing the effect of the modifications, and examining whether the modification reaction can be incorporated into an industrial process. 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



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research under the supervision of the PI.

The appointment is full-time for one year and may be renewed upon recommendation of the ARS and availability of funding.

The participant will receive an annual stipend of \$62,476. A stipend supplement in the amount of \$5,160 is provided to offset the cost of an individual or family health insurance plan. The participant must show proof of health and medical insurance. Health insurance may be obtained through ORISE. Relocation expenses, up to \$1,200, will be reimbursed, with prior approval. A travel allowance of \$1,500 is available for travel-related expenses to scientific and professional development activities.

The participant does not become an employee of ARS or ORISE.

While participants will not enter into an employment relationship with ARS, this position requires a pre-employment check and a full background investigation.

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.

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.

For more information about the ARS Research Participation Program, please visit the [Program Website](#).

Qualifications

Eligible applicants must have received a doctorate degree. A wide variety of disciplines related to chemistry, food science, biochemistry, and chemical or bio systems engineering are appropriate. Candidates without significant laboratory research experience will not be considered. Previous experience in one or more of the following areas is desirable:

- protein biochemistry or analysis
- polymer chemistry or analysis
- colloid chemistry
- chemical engineering process design
- techno-economic analysis of chemical or food processes
- wastewater treatment

The research requires that the participant work at a level of independence at least equal to that of a successful PhD candidate. Critical evaluation of the literature, creative problem solving, effective written and oral communication, and self-discipline are all essential. In terms of general laboratory work,






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the applicant should have professional level skills and the capability to critically evaluate their own technique. All specific methodologies and techniques can be learned or developed during the opportunity.

**Eligibility
Requirements**

- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (6 )
 - **Earth and Geosciences** (1 )
 - **Engineering** (4 )
 - **Environmental and Marine Sciences** (1 )
 - **Life Health and Medical Sciences** (5 )