Postdoctoral position in Plant-microbe interactions

A postdoctoral position is available in the laboratory of Dr. Tim Paape in the Biology Department at Brookhaven National Laboratory on Long Island, NY. The position involves studying plant-microbe interactions of nitrogen fixing, symbiotic bacteria and legume plant systems using genetic and genomic techniques. We are interested in genetic, cellular and evolutionary mechanisms involved in detoxification of plant tissues when exposed to heavy metals. The post doc would be involved in several possible lines of investigation including but not limited to: transcriptomics (RNA-seq), qPCR, functional genetics using gene knock-outs (RNAi, CRISPR), XRF imaging in both host plants and microbes using beamlines at NSLS-II, genome annotation of newly assembled rhizobia genomes, genetic diversity analysis, and quantitative genetics. The post doc will be encouraged to pursue independent aspects of plant-microbe interactions and role of ion detoxification by both plants and microbes, as well as combining several interdisciplinary aspects using the techniques listed above. Incorporation of evolutionary and/or ecological aspects and analyses into this research is highly encouraged. Equally, we hope to expand our group’s skillset by incorporating incoming skills. This position has a high level of interaction with an international and multicultural scientific community, including the Joint Genome Institute (JGI) and the Environmental Molecular Sciences Laboratory (EMSL), both DOE run facilities. The surrounding areas of eastern Long Island have nice beaches, forested areas, organic farms, and vineyards.

Essential Duties and Responsibilities:

- Conduct experiments using host plants and symbiotic microbes for ionomics, transcriptomics and X-ray imaging to identify genotype x genotype effects of adaptive host microbe interactions
- Cultivate plants and microbes using sterile techniques for genetic and imaging experiments
- Sample preparation for RNA-seq, metabolomics and functional characterization of genes and pathways regulating plant metal homeostasis
- Molecular analysis of candidate ion transporter genes
- RT-PCR preparation and qPCR analysis, Sanger sequencing and basic sequence alignment/analysis
- Using publicly available databases to identify sequence homology (i.e. BLAST, NCBI)

Required Knowledge, Skills, and Abilities:

- Ph.D. in plant biology, molecular biology, genetics, evolutionary biology, biochemistry, or related field
- Demonstrated knowledge in molecular, genetic and biochemical characterizations of genes and pathways.
- Experience in manuscript writing and demonstrated track record of publication of research in high quality peer-reviewed journals
- Ability to work collaboratively in a team-based research environment
- Quantitative genetics and phenotype analysis
- Analysis of genomics data, RNA-seq, Illumina, SNP calling
Preferred Knowledge, Skills, and Abilities:

- Experience with mass spectrometry imaging and X-ray fluorescence imaging
- ICP-MS or similar mass spectrometry for ion analysis
- Knowledge of plant physiology, metal homeostasis, biochemistry
- Evolutionary or ecological genetics/genomics

WHY WORK AT BNL?

Brookhaven National Laboratory is a multipurpose research institution funded primarily by the U.S. Department of Energy’s Office of Science. Located on the center of Long Island, New York, Brookhaven Lab brings world-class facilities and expertise to the most exciting and important questions in basic and applied science—from the birth of our universe to the sustainable energy technology of tomorrow. We operate cutting-edge large-scale facilities for studies in physics, chemistry, biology, medicine, applied science, and a wide range of advanced technologies. The Laboratory's almost 3,000 scientists, engineers, and support staff are joined each year by more than 4,000 visiting researchers from around the world. Our award-winning history, including seven Nobel Prizes, stretches back to 1947, and we continue to unravel mysteries from the nanoscale to the cosmic scale, and everything in between. Brookhaven is operated and managed by Brookhaven Science Associates, which was founded by the Research Foundation for the State University of New York on behalf of Stony Brook University, and Battelle, a nonprofit applied science and technology organization.

Other information:

- BNL policy requires that research associate appointments be made to individuals who have received their doctorate within the past five years.
- The initial appointment will be one year with annual renewal contingent upon satisfactory performance and continued funding.

Informal inquires and letters of interest can be emailed to tpaape@bnl.gov. The formal job requisition (#2348) will be posted at https://jobs.bnl.gov/, and candidates are required to submit a cover letter stating their interests in the position and a current CV. A second position is available in bioenergy crop genomics (job requisition # 2314 is currently open. Apply by November 7 for full consideration. Applications received beyond that date will receive consideration if the position has not been filled.

ORGANIZATIONAL OVERVIEW

Researchers in the Biology Department at Brookhaven National Laboratory seek to unravel and fully describe the complexities of biological systems—from how plants make oils and other products to the role of proteins in disease. Our work helps to develop and makes use of the tools and techniques of biochemistry, molecular genetics, and structural biology. We also leverage the unique capabilities of Brookhaven’s National Synchrotron Light Source-II and Center for Functional Nanomaterials, major research facilities open to scientists from around the world. Our research makes important contributions to fulfilling the missions of the U.S. Department of Energy’s Office of Basic Energy Sciences and Office of Biological and Environmental Research. In addition, together with the Collider-Accelerator Department, the Biology Department manages the NASA Space Radiation Laboratory (NSRL) at Brookhaven, which is used by radiobiologists and physicists to study the effects of space radiation on both living and non-living systems with the aim of protecting future astronauts.
At Brookhaven National Laboratory we believe that a comprehensive employee benefits program is an important and meaningful part of the compensation employees receive. Our benefits program includes, but is not limited to:

- Medical Plans
- Dental Plans
- Vacation
- Holidays
- Life Insurance
- 401(k) Plan
- Paid Parental Leave
- Swimming Pool, Weight Room, Tennis Courts, and many other employee perks and benefits

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