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NIST PREP Faculty Orientation

August 15, 2018

Jennean Everett – JHU Consortium PREP Coordinator

Email: jeverett@jhu.edu

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The JHU NIST Consortium

- Johns Hopkins University (JHU) has been awarded up to $30 M over 5 years to lead an academic consortium of three Mid-Atlantic universities that will partner students, post-docs, graduates, and faculty with research projects at the National Institute of Standards and Technology (NIST) - Gaithersburg.
- JHU PREP Consortium Partner Universities
  - Morgan State University
  - Binghamton University (SUNY)

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The JHU NIST Consortium

- The Professional Research Experience Program (PREP), combines research-intensive educational programs with real-world experiences, helping students (and faculty) understand industry demands and gain knowledge in advancing measurement science and technology.

- Areas of interest include (but may not be limited to) biochemistry, biological sciences, chemistry, computer science, engineering, electronics, materials science, mathematics, nanoscale science, neutron science, physical sciences, physics, and statistics.

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The JHU NIST Consortium

- The program supports participants to work on-site at NIST in Gaithersburg, and covers both stipend/salary and graduate tuition (where applicable) for periods of 3-12 months

- Cultivating and nurturing relationships with NIST researchers is going to be critical to the success of the program as formal requests for support of participants must technically be initiated by NIST

- Program will be run out of a central WSE NIST PREP Office, and available to both WSE and KSAS researchers

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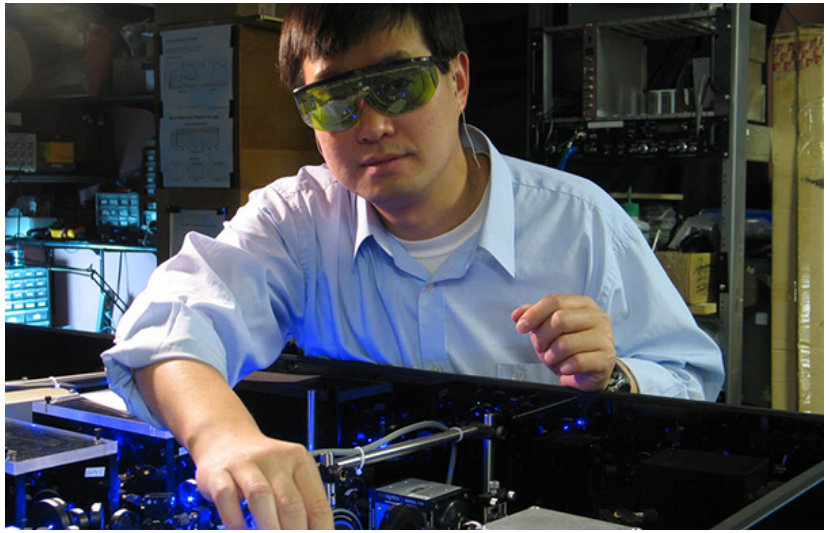
The JHU NIST Consortium

- Benefits to JHU Faculty
  - Salary and Tuition covered for researchers and students
  - Access to NIST equipment, facilities, and personnel
  - Growth of NIST collaboration posture

- Benefits to JHU Students
  - Exposure to NIST researchers and facilities
  - Potential employment post graduation

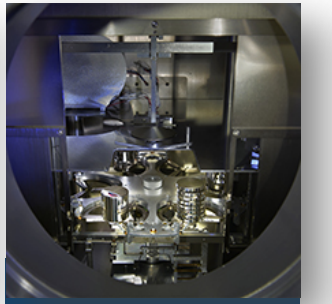
NIST Mission

To promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life



NIST Laboratory Programs

Material Measurement Laboratory

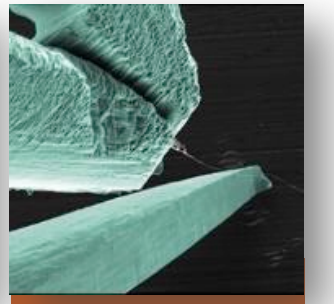


Physical Measurement Laboratory

Engineering Laboratory

Information Technology Laboratory

Communication Technology Laboratory



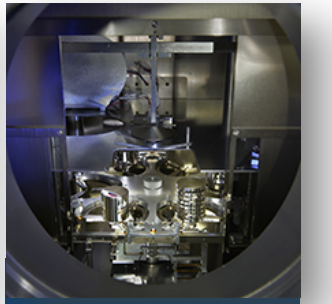
Center for Nanoscale Science and Technology

NIST Center for Neutron Research

Annual Budget: $1.1 B
FTE (FY16): 3,192 Employees
2,741 – Gaithersburg
451 – Boulder

NIST Laboratory Programs

Material Measurement Laboratory



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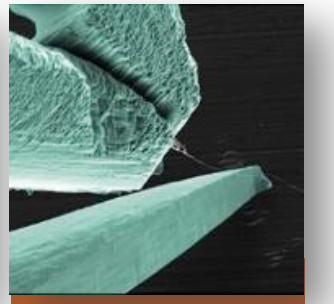

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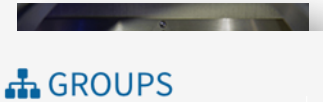

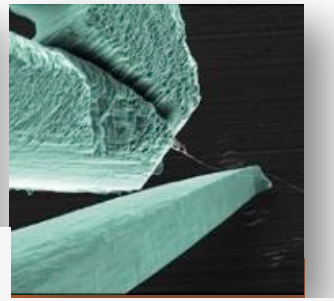

Material Measurement Laboratory

GROUPS

- Fatigue and Fracture Group
- Fluid Characterization Group
- Nanoscale Reliability Group
- Thermodynamics Research Center
- Thermophysical Properties of Fluids Group

GROUPS

- Applied Genetics Group
- Bioanalytical Science Group
- Biomolecular Structure and Function Group
- Bioprocess Measurements Group
- Mass Spectrometry Data Center

GROUPS

- Bioassay Methods Group
- Biomaterials Group
- Cell Systems Science Group
- Microbial Metrology Group

GROUPS

- Chemical Informatics Research Group
- Chemical Process and Nuclear Measurements Group
- Environmental Chemical Sciences Group
- Environmental Specimen Bank Group
- Gas Sensing Metrology Group
- Inorganic Measurement Science Group
- Marine Biochemical Sciences Group
- Organic Chemical Measurement Science Group
- Information Access Division
- Software and Systems Division
- Statistical Engineering Division

GROUPS

- Materials for Energy and Sustainable Development Group
- Materials Structure and Data Group
- Microscopy and Microanalysis Research Group
- Nano Materials Research Group
- Nanomechanical Properties Group
- Security Technologies Group
- Surface and Trace Chemical Analysis Group
- Synchrotron Science Group

GROUPS

- Functional Nanostructured Materials Group
- Functional Polymers Group
- Mechanical Performance Group
- Polymers and Complex Fluids Group
- Polymers Processing Group
- Thermodynamics and Kinetics Group

DIVISIONS

- Applied Chemicals and Materials Division
- Biomolecular Measurement Division
- Biosystems and Biomaterials Division
- Chemical Sciences Division
- Materials Measurement Science Division
- Materials Science and Engineering Division
- Office of Data and Informatics
- Office of Reference Materials

DIVISIONS

- Applied Physics Division
- Engineering Physics Division
- Quantum Electromagnetics Division
- Quantum Measurement Division
- Quantum Physics Division
- Radiation Physics Division
- Sensor Science Division
- Time and Frequency Division
- Weights and Measures

DIVISIONS

- Energy and Environment Division
- Fire Research Division
- Intelligent Systems Division
- Materials and Structural Systems Division
- Systems Integration Division

NIST Center for Neutron Research

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NIST Extramural Programs

Public-private partnerships improving U.S. economic competitiveness

Hollings Manufacturing Extension Partnership

Manufacturing USA

Baldridge Performance Excellence Program

JHU Affiliated Member

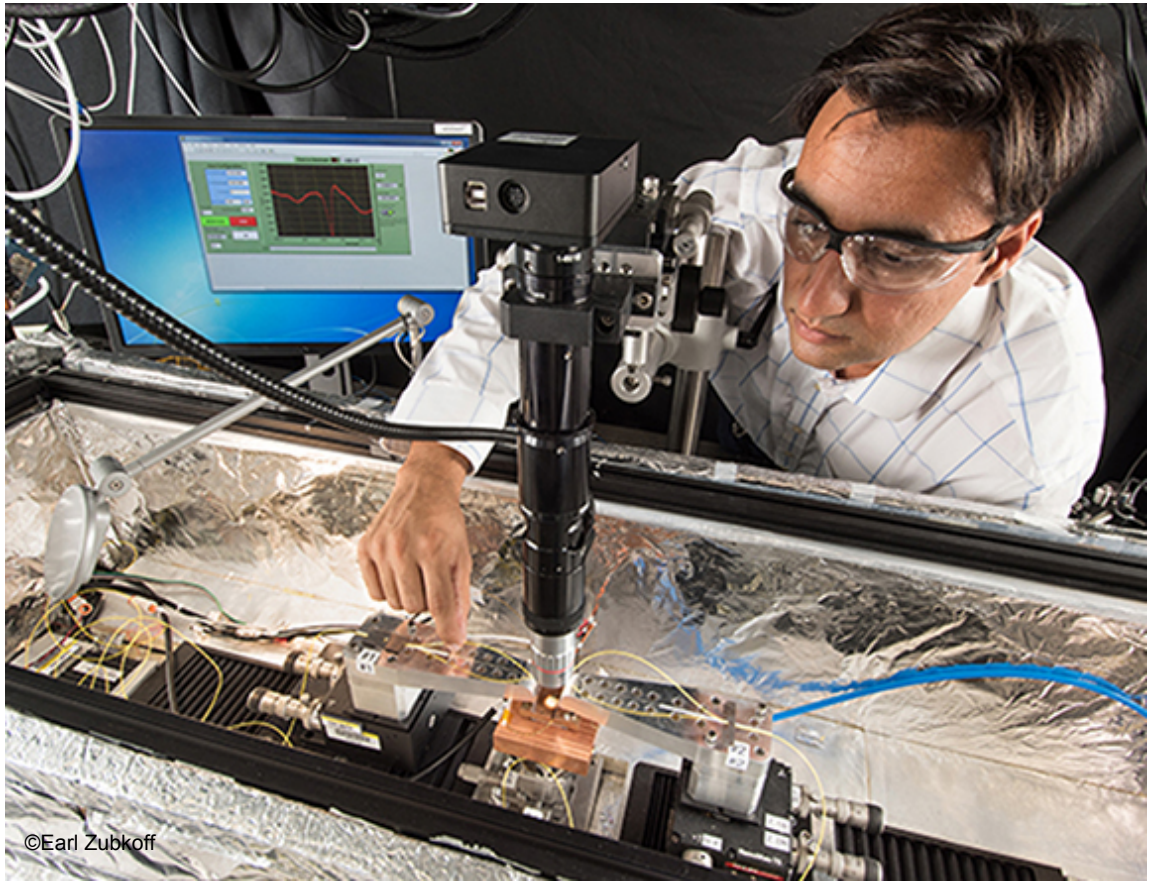
Strategic Priorities, National Impacts

Cybersecurity

Advanced Manufacturing

Strategic Priorities, National Impacts

Bioeconomy



Quantum Science

Strategic Priorities, National Impacts

Artificial Intelligence

Internet of Things

PREP University Participants

- Brown University
- Georgetown University
- Johns Hopkins University, Morgan State University and SUNY Binghamton Consortium
- Montgomery College
- Towson University
- University of District of Columbia
- University of Maryland College Park

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The JHU NIST Consortium

Categories of "PREP Researchers":

- **Undergraduates**: They can work at minimum of 10 hours per week (and full time during the summer) for as long as they are enrolled in their university or college.
- **Post-Bachelor's Degree**: Those in this newly offered category can work at NIST for up to five years before entering graduate school or seeking other employment.
- **Graduate Students**: They can participate up to six years, as long as they are continuing to make progress toward their degree(s) in the participating university. They usually work part time during the school year and full time in the summer.
- **Master's Degree Holders:** This newly offered category describes individuals who are not pursuing a Ph.D. They can work as PREP researchers for an unlimited number of years.
- **Postdocs:** They work full time, and their tenure at NIST can be extended indefinitely. Their salary level is based on their experience and education.
- **Research faculty:** These may be employees of almost any university or college, and can work at NIST for up to a year. They don't have to be tenure-track faculty.

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The JHU NIST Consortium: Application Process Overview

- NIST Mentor & JHU Advisor agree on research thrust and identify “PREP Researcher” candidate.
- NIST Mentor requests for a PREP Researcher by submitting a “proposal” to NIST-Gaithersburg PREP Coordinator
- The proposal is sent to the JHU PREP Consortium. The JHU PREP Consortium generates a budget reflecting the actual cost to hire and pay the PREP Researcher through NIST PREP. Budget sent back to NIST Gaithersburg for review.
- If expenses are approved by NIST Gaithersburg, formal application and onboarding process begins.

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The JHU NIST Consortium: Application Process Overview

1. JHU Faculty & NIST Scientist identify collaborative research opportunity and potential NIST PREP Researcher.

2. NIST Scientist notifies PREP Coordinator at NIST that a research opportunity is available and can be supported by a PREP Researcher.

JHU Consortium PREP Coordinator (Jennean Everett) mirror the "official" communication structure as the NIST-Gaithersburg PREP Coordinator (Kara Arnold)

The JHU NIST Consortium: Application Process Overview

3. The NIST Scientist provided the NIST PREP Coordinator the following “proposal”:
    - ❑ PREP Researcher’s contact information
    - ❑ PREP Researcher’s JHU Advisor
    - ❑ Description of the work needed
    - ❑ How they identified the PREP Researcher
    - ❑ Scope of Work – Length of Appointment
    - ❑ Education and experience requirements
    - ❑ Proposed salary offer

The JHU NIST Consortium: Application Process Overview

4. NIST PREP Coordinator sends request and proposal to JHU asking for cost estimate.

5. JHU Consortium PREP Coordinator considers applicant and verifies they meet minimum participation requirements and their employment eligibility is confirmed. Upon completion JHU will send a budget to NIST PREP Coordinator outlining the costs to hire through PREP:
   - Salary
   - Benefits
   - Tuition
   - Relocation Expenses (if applicable)
   - VISA Expenses (if applicable)

The JHU NIST Consortium: Application Process Overview

6. If the sponsoring NIST Scientist agree to accept the cost, JHU is informed.
7. Formal application process begins:
   - PREP Researcher candidate will apply online by submitting a resume, a statement of relevant experience, a transcript (for students), 2 references (one must be from faculty advisor), and a personal statement that addresses his/her reasons for applying and future plans.
   - Provide verification of eligibility to work in the US, working with the Johns Hopkins Office of International Services to obtain visas for non-US citizens, if necessary.

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The JHU NIST Consortium: Application Process Overview

8. The application will be fully evaluated by JHU Consortium PREP Coordinator and accepted if complete. Onboarding activities begin at JHU and NIST
9. Onboarding Process:
   - Review orientation materials with participant including code of conduct, data/clearance considerations.
   - Provide any necessary training
10. Monitoring Participants
   - Meeting with students at regular intervals
   - Ensuring reporting compliance

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Next Steps

- How do we leverage existing relationships with NIST to get early adoption of program participants?
- We need to be prepared to provide information on the program to collaborators at NIST that may not be aware
- Visits to NIST? NIST visits to campus?
  - Kick-off Meeting @ NIST- Gaithersburg (September 12 & 13, 2018)

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Contact Info

- Larry Nagahara – Associate Dean of Research WSE
- John Toscano – Vice Dean for Natural Sciences KSAS

- Jennean Everett – JHU Consortium PREP Coordinator
- jeverett@jhu.edu
- 410-992-7304 x207
- *[JHU PREP Website Coming Soon!]*