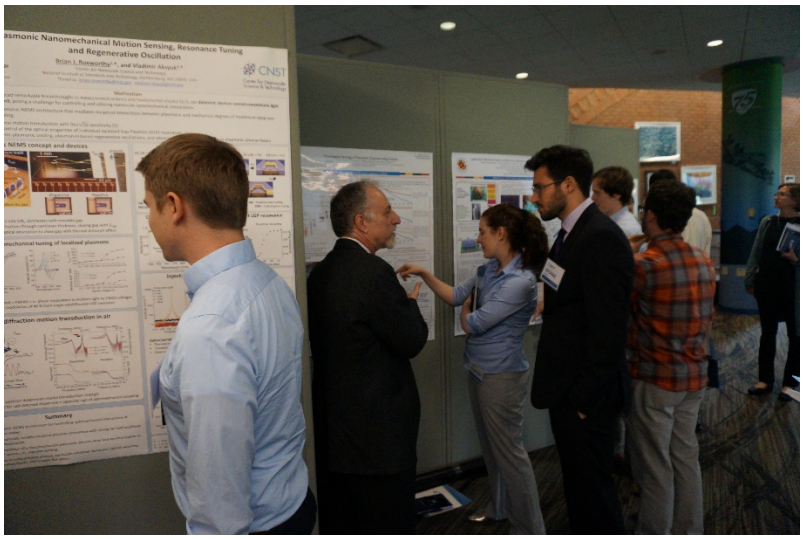
2017 M-CERSI Post-Event Report:

Prepared by the Mid-Atlantic Micro-Nano Alliance

June 4, 2017

Introduction

The Mid-Atlantic Micro-Nano Alliance (MAMNA) hosts an annual symposium to support their mission: fostering technical collaboration in the Mid-Atlantic region. MAMNA is composed of over 100 at-large members and 20 scientist, engineers, and business leaders on their volunteer steering committee, representing organizations like NASA, DOE, and the FDA. This year's symposium focused on upcoming sensor technologies, critical to next generation biological applications relevant to the FDA, as well as sensors for other extreme environments such as outer space. **This event was made possible by the financial and logistical support provided by CERSI.**



Students presenting their work during one of our poster sessions

Event Summary

The MAMNA symposium was held at Johns Hopkins Applied Physics Laboratory on April 17th, 2017 with 77 people in attendance. For the first time, **student presenters attended for free thanks to the grant from CERSI**. The symposium opened with a plenary talk from Nobel Laureate Dr. John Mather, the technical lead for the James Webb Telescope. From there, attendees discussed the opening session over coffee and then split into breakout session (agenda attached). The breakout sessions featured a student speaker in each session, often their first public presentations. The other plenary speakers were particularly relevant to the FDA; Dr. Dion Khodogholy is working on sensors for brain-based treatments and Dr. Howard Katz is making new organics for bio-electric applications. Following lunch and the second breakout session, participants participated in an extended poster session. On the whole, the event was one of the best for MAMNA, thanks in large part to the professional staff at Johns Hopkins and particularly the logistical support provided by CERSI.

The CERSI support enabled cross-discipline collaboration, including between FDA and other attendees, which will ultimately result in new technologies being realized faster than they would have otherwise. Most attendees felt like a new collaboration would likely arise from their attendance. MAMNA also recruited new at-large and steering committee members at the event.

Conclusion

The collaboration between MAMNA and CERSI has enabled mutual support of each-others mission. MAMNA continues to foster local collaborative innovation while the CERSI-supported MAMNA events help researchers work with the FDA to support the development of new tools, standards and approaches to assess the safety, efficacy, quality and performance of FDA-regulated products.

MAMNA 2017 Spring Symposium Agenda

8:00 AM **Registration and Welcome Reception**

8:30 AM **Introductory Remarks:** *Auditorium*

8:45 AM **Conference Plenary I:** *Auditorium*
Large-scale Organic Neural Interface Devices
Dr. Dion Khodagholy, NYU/Columbia University

9:45 AM **Break**

10:00 AM **Conference Plenary II:** *Auditorium*
Sensors in Space
Dr. John Mather, NASA Goddard

11:00AM **Break**

11:15AM **Morning Breakout Sessions**

Session I: Sensors in Extreme Environments *(Nano Room)*
Multifunctional Boron Nitride Nanotube and Nanotube Composites for Extreme Space Environments
Dr. Cheol Park, NASA

Session II: Data Integration and Management *(Micro Room)*
Applications of Heterogeneous Sensing and Techniques for Integration
Dr. Joseph Conroy, Army Research Laboratory

Distributed sensor network designs and deployments: from the Gulf of Mexico to above the Arctic Circle
Ben Schreib, AECOM

12:00 PM **Lunch, Networking and Poster Session:** *Dining Area*

1:30 PM **Afternoon Breakout Sessions**

Session I: Bio/Wearable Sensors *(Nano Room)*
Flexible Organic Inverter Architecture and Use as Ammonia Sensor
Jennifer Dailey, Johns Hopkins University

Paper microfluidic systems for complex analyses: NASBA and low molecular weight agent separation and detection
Dr, Stergios Papadakis, Johns Hopkins Applied Physics Lab

Ultra-thin thermo-responsive self-folding 3D graphene for biosensing and bioelectronics
Weinan Xu, Johns Hopkins University

Encapsulated Biomaterial-enabled Microsensor for Pancreatic Health Monitoring
George Banis, University of Maryland

Materials Enabling Sensors *(Micro Room)*

Structured Material for Bio-Capture, Detection, and Sampling
Dr. Xiomara Calderon-Colon, Johns Hopkins Applied Physics Lab

Trace gas Raman spectroscopy in functionalized waveguides
Nathan Tyndall, Naval Research Laboratory

Graphene for Sensors
Drs. Kevin Smith and Anyndia Nath, James Madison University and NRC

Effect of Annealing on MoS2 Transistors with Ambipolar Transport
Kyle DiCamillo, Georgetown University

2:50 PM **Afternoon Coffee**

3:00PM **Conference Plenary III:** *Auditorium*
Mechanisms of Vapor and Biomolecule Signaling in Organic Field-Effect Transistors
Dr. Howard Katz, Johns Hopkins University

4:00PM **Poster Viewing + Happy Hour**

4:30 PM **Conclusion and Poster Prize Announcement:** *Dining Area*