

## 2016 M-CERSI Post-Event Report:



Prepared by the Mid-Atlantic Micro-Nano Alliance

April 25, 2016

## 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 centered the discussions on new technologies enabled by materials science breakthroughs in the areas of flexible/stretchable devices, power and energy, sensors and actuators, and biotechnology. **This event was made possible by the financial and logistical support provided by CERSI.**

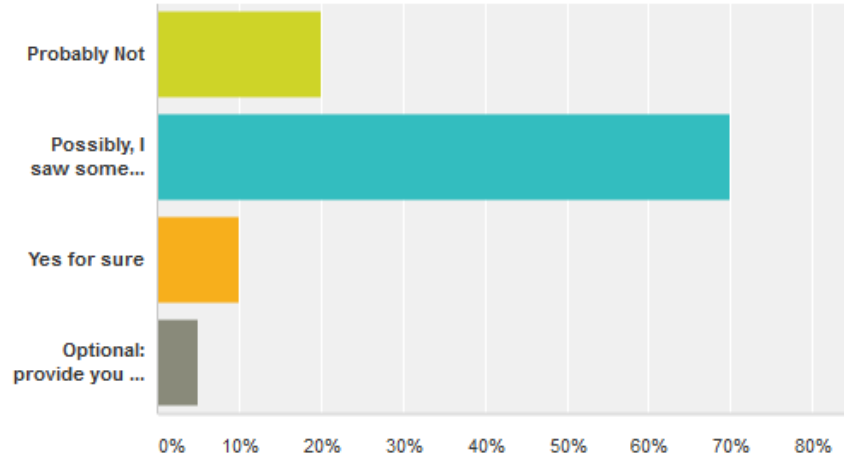


*Attendees enjoying the rump session*

## Event Summary

The MAMNA symposium was held at Johns Hopkins Applied Physics Laboratory on March 25<sup>th</sup>, 2016, with over 75 people in attendance. Students comprised 30% of the attendance aided by **the grant from CERSI which was instrumental in keeping registration prices to a minimum.** The symposium opened with a plenary talk from Dr. James Warren (NIST), the technical lead for the White House-led Materials Genome Initiative. From there, attendees discussed the opening session over coffee, provided by CERSI, and then split into breakout session (agenda attached). The breakout sessions featured a student speaker for the first time. The breakout sessions were rated Engaging (90%) to Very Engaging (10%) in a post event survey. Following lunch and the second breakout session, participants were divided into random groups and led through a shark-tank like competition where teams created new technologies to aid public speakers. 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. Over 80% of 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.



*Survey responses to: Do you think a new collaboration/opportunity will arise from your attendance?*

## 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 Spring Symposium Agenda:

|                 |   |
|-----------------|---|
| <b>9:00 AM</b>  | <b>Registration and Welcome Reception</b>   |
| <b>9:45 AM</b>  | <b>Introductory Remarks:</b> <i>Auditorium</i>  |
| <b>10:00 AM</b> | <b>Conference Plenary:</b> <i>Auditorium</i><br><i>The Materials Genome Initiative, Data, and Open Science</i><br>Dr. James A. Warren, Director of the Materials Genome Program, NIST   |
| <b>10:45 AM</b> | <b>Break</b>  |
| <b>11:00 AM</b> | <b>Morning Breakout Sessions</b><br><b>Session I: Stretchable Electronics &amp; Actuators</b> ( <i>Nano Room</i> )<br><i>Neural Recording Arrays with Distributed Cellular-Level Optical Stimulation</i><br>Dr. Fan Wu, Vice President of Product Development, Diagnostic Biochips, Inc.<br><i>From Fractals to Ferrofluids: Creating a Soft and Squishy Power System</i><br>Dr. Nathan Lazarus, Electronics Engineer, Army Research Laboratory<br><i>Solid-Liquid Composite Material Skins for Airfoil Actuation</i><br>Dr. Marriner H. Merrill, ASEE-NRL Postdoc Fellow, Naval Research Laboratory<br><b>Session II: Sensors</b> ( <i>Micro Room</i> )<br><i>Measurement of resistance induced by a single potassium atom on chiral-angle known nanotubes: understanding the impact of a model scatterer for nanoscale sensors</i><br>Professor Masa Ishigami, University of Central Florida<br><i>Key Parameters for Metal – Graphene Contacts</i><br>Dr. Kurt Gaskill, Senior Scientist, Naval Research Laboratory<br><i>3D Printed Microcubes for Cell Physicobiology</i><br>Christina Krueger, University of Maryland |
| <b>12:15 PM</b> | <b>Lunch, Networking and Poster Session:</b> <i>Dining Area</i>   |
| <b>1:30 PM</b>  | <b>Afternoon Breakout Sessions</b><br><b>Session I: Bio</b> ( <i>Nano Room</i> )<br>Location: <i>Nano Room</i><br><i>3D Printed Microfluidic Circuitry via Alternative Additive Approaches</i><br>Professor Ryan Sochol, University of Maryland<br><i>Nanoparticle Ensembles: from Self-Assembly to Cancer Theranostics</i><br>Professor Zhihong Nie, University of Maryland<br><i>Magnetic Drug Delivery to the Inner Ear to Prevent Cisplatin Induced Hearing Loss</i><br>Bharath Ramaswamy, University of Maryland<br><b>Session II: Power and Energy</b> ( <i>Micro Room</i> )<br><i>Seeing is Believing: Imaging Electrochemistry at the Nanoscale</i><br>Dr. Todd Brintlinger, Research Physicist, Naval Research Lab<br><i>Nanomaterials for Energy and Flexible Electronics</i><br>Dr. Liangbing Hu, University of Maryland<br><i>Development of an Integrated RF-to-Optical Transducer</i><br>Christopher L. Panuski, United States Naval Academy  |
| <b>2:45 PM</b>  | <b>Rump Session:</b> <i>Dining Area</i>   |
| <b>3:30 PM</b>  | <b>Poster Session / Networking (continued):</b> <i>Dining Area</i>  |
| <b>4:15 PM</b>  | <b>Poster Prize Announcement:</b> <i>Dining Area</i>  |