

January 5 **2018**

University of Cincinnati Sensor Community

Retreat:

Sensor Advances,
Networking and Charting
Our Future

Event Program



Sponsored by the Office of Research

University of Cincinnati Sensor Community Retreat: Sensor Advances, Networking and Charting Our Future

January 5, 2018, 9:30 am – 4:00 pm
Great Hall, Tangeman University Center
University of Cincinnati

9:30 *Networking, Posters & Coffee*

10:00 *Opening Remarks*

Bill Connick, Professor, UC Department of Chemistry

10:10 **Ryan White**, Professor and Ohio Eminent Scholar, UC
Department of Chemistry, UC Department of Electrical
Engineering and Computation Science
*Developing Electrochemical Sensing and Imaging
Platforms for Dynamic Small Molecule Monitoring*

10:45 **Breakout Sessions**

**Session 1: *All Angles - A Translational Look at Sensors from Basic
Science to Commercialization***

Organizer: **Ryan White**, Professor, Ohio Eminent Scholar, UC
Department of Chemistry, UC Department of Electrical
Engineering and Computation Science

Room 400-A Tangeman University Center

10:45 **George J. Shaw**, MD, PhD, UC Dept of Emergency
Medicine, Chief Technical Officer of SENSE
Diagnostics, LLC

*Non-Invasive Sensors in the Emergency Department:
Clinical Needs and Solutions*

11:00 **Ashley Ross**, Assistant Professor, UC Department of
Chemistry

Rapid Electrochemical Sensing in the Brain

- 11:15 **Andrew Steckl**, Professor and Ohio Eminent Scholar,
UC Department of Electrical Engineering and Computer
Science
Paper-Based Sensors for Bio/Medical Applications
- 11:30 **Christopher Hunter**, PhD, Director of Engineering in
R&D, Meridian Bioscience Inc.
*Dr. Academia: How I Learned to Stop Worrying and
Love the Regs*
-

**Session 2: *Water Resources Management: From Sensors to
Applications***

Organizer: **Dominic Boccelli**, Associate Professor, UC Department
of Chemical and Environmental Engineering

Room 400-C Tangeman University Center

- 10:45 **Dominic Boccelli**, Associate Professor, UC Department
of Chemical and Environmental Engineering
*A Framework for Data-Driven Real-Time Distribution
System Modeling*
- 11:00 **Mike Ekberg**, Manager for Water Resource Monitoring,
Miami Conservancy District
*Water Data and Use of Sensors at The Miami
Conservancy District*
- 11:15 **Christopher Nietch**, Research Ecologist, US
Environmental Protection Agency
*Watershed-Scale Water Quality Sensing Technology:
Don't Forget The Data Management*
- 11:30 **John Barton**, Principal Engineer, Metropolitan Sewer
District of Greater Cincinnati
Smart Sewers: The Challenge of Remote Sensing
-

Session 3: Interdisciplinary Research with CoM Faculty

Organizers: **Melanie Cushion**, Professor, Senior Associate Dean for Research, UC Department of Infectious Diseases

Alison Weiss, Professor, UC Department of Molecular Genetics, Biochemistry & Microbiology, College of Engineering & Applied Science

Room 415-AB Tangeman University Center

10:45 **Jack Kues**, Associate Dean for Continuous Professional Development, Professor Emeritus, Department of Family and Community Medicine

Melanie Cushion, Senior Associate Dean for Research, Professor, UC Department of Infectious Diseases
Team Science

11:05 **Senu Apewokin**, MD, Assistant Professor, Department of Internal Medicine
Interdisciplinary Approaches to Personalized Medicine to Prevent Post-Transplant Infections

11:25 **Gregory Fermann**, MD, Vice Chairman Department of Emergency Medicine
The Emergency Department as a Research Resource

Session 4: Embedded-Artificial Intelligence in Sensor Systems, Sensors for Internet of Things, Cybersecurity in Sensor Systems

Organizer: **Rashmi Jha**, Associate Professor, UC Department of Electrical Engineering and Computer Science

Room 419-AB Tangeman University Center

10:45 **Rashmi Jha**, Associate Professor, UC Department of Electrical Engineering and Computer Science
Energy-Efficient Embedded AI for On-Sensor Computing

11:05 **Kevin Leedy**, PhD, Sensors Directorate, Air Force Research Laboratory, WPAFB

β -Ga203 – A Versatile Wide Bandgap Semiconductor

- 11:25 **Brian Dupaix**, Adjunct Professor, The Ohio State University, Department of Electrical and Computer Engineering, Air Force Research Laboratory, Wright-Patterson Air Force Base
The microelectronics trust in an interconnected world
-

- 11:45 *Networking, Lunch & Poster Viewing*
Tangeman University Center – Great Hall

Lunchtime Table Topics

Biomedical Sensor Users and Designers

Cyber & Artificial Intelligence

Data Analytics & Sensors

Sensors in Education

Sensors for Personal Health Monitoring

Water & Environmental Applications

- 1:00 *Elevator Pitch Competition*

Organizer: **Alison Weiss**, Professor, UC Department of Molecular Genetics, Biochemistry & Microbiology, College of Engineering & Applied Science

Tangeman University Center – Great Hall

Ian Bruzas, UC Department of Chemistry

Dissertation Advisor: Laura Sagle, Assistant Professor,
UC Department of Chemistry

Detecting Membrane-Associated Species With Native Receptors

Shima Dalirirad, UC Department of Physics

Dissertation Advisor: Andrew Steckl, Professor and Ohio Eminent Scholar, UC Department of Electrical Engineering and Computer Science

Stress and Depression Biomarkers Detection by Paper Based Biosensor

Prajokta Ray, Department of Electrical Engineering and Computation Science

Advisor: Andrew Steckl, Professor and Ohio Eminent Scholar, UC Department of Electrical Engineering and Computer Science

Label Free Optical Detection of Stress Biomarkers in Sweat, Plasma

Mirelis Santos-Cancel, UC Department of Chemistry
Dissertation Advisor: Ryan White, Professor and Ohio Eminent Scholar, UC Department of Chemistry, UC Department of Electrical Engineering and Computation Science

In-vitro Studies of the Role of Adenosine Triphosphate (ATP) in Brain Communication with Improved Specificity

1:15 **Tamara Lorenz**, Assistant Professor, UC Department of Psychology, Department of Electrical Engineering and Computation Science, Department of Mechanical and Materials Engineering

Sensing in Human-Robot Interaction

1:40 **Dieter Vanderelst**, Assistant Professor, UC Department of Psychology, Department of Biology, Department of Electrical Engineering and Computation Science, Department of Mechanical and Materials Engineering
Manish Kumar, Associate Professor, UC Department of Mechanical and Materials Engineering

Ranga Vemuri, Professor, UC Department of Electrical Engineering and Computer Science

Fred R. Beyette, Professor, University of Georgia, Founding Chair of the School of Electrical and Computer Engineering

Sensors Seed Funding Grant Update: SonarDAQ: a versatile sonar data acquisition device

2:00 **Anastasios Angelopoulos**, Associate Professor, UC
Department of Chemical and Environmental Engineering
Saulius Kazimieras Girnius, Assistant Professor, MD,
UC Department of Internal Medicine
Jonathan Bernstein, Professor, MD, UC Department of
Internal Medicine
*Sensors Seed Funding Grant Update: Chemical
Measurement of Exhaled Formaldehyde and Acetone
Dynamics as Early-Stage Non-Invasive Markers of Lung
Disease*

2:20 *Networking, Coffee & Poster Viewing*
Tangeman University Center – Great Hall

2:45 **Breakout Sessions**
*Charting the future of sensors research, technology and
applications in our region: a meeting of all stakeholders*

Room 400-A Tangeman University Center
Discussion Leader: **Ryan White**

Room 400-C Tangeman University Center
Discussion Leader: **Dominic Boccelli**

Room 415-AB Tangeman University Center
Discussion Leader: **Jack Kues**

Room 419-AB Tangeman University Center
Discussion Leader: **Rashmi Jha**

Tangeman University Center – Great Hall

3:30 *Synthesis of Breakout Sessions*

Teri Reed, Assistant Vice President for Economic Development, UC Office of Research; Professor, Department of Biomedical, Chemical, and Environmental Engineering

3:45 *Elevator Pitch Winners & Closing Remarks*
Alison Weiss, Professor, UC Department of Molecular Genetics, Biochemistry & Microbiology, College of Engineering & Applied Science
Bill Connick, Professor, UC Department of Chemistry

4:00 *End*

Behind the Scenes of the Retreat

Bill Connick, Chemistry, A&S
Alison Weiss, Molecular Genetics, MED
Peng Zhang, Chemistry, A&S
Philip H. Taylor, UC Office of Research
Ryan White, A&S
Dominic Boccelli, CEAS
Melanie Cushion, COM
Rashmi Jha, CEAS
William Heineman, Chemistry, A&S
Andrew Steckl, CEAS
Autumn Leigh Miller, Communication, A&S
Julie Collinsworth, UC Research Institute
Cindy Treacy, A&S
Amy Jones, A&S
Kimberly Carey, Chemistry, A&S
Nate Barker, Graduate Student, A&S
Spencer Hendrickson, Graduate Student, A&S
Caroline Williams, Graduate Student, A&S
Mary Warmin & the Chemistry Graduate Student Association,
A&S
Sarah Sweeney, Chemistry Student Worker, A&S
Payton Mays, Chemistry Student Worker, A&S