

## CURRICULUM VITAE

**RYAN J. WHITE**

### **EDUCATION**

Ph.D. 2007 University of Utah, Chemistry  
B.A. 2003 University of North Carolina, Chapel Hill, Chemistry

### **Experience in Higher Education**

July 2016 Present **University of Maryland Baltimore County**, Baltimore, MD,  
Associate Professor, Chemistry  
Associate Member of the Combined Graduate Program in  
Biochemistry and Molecular Biology

August 2011-June 2016 **University of Maryland Baltimore County**, Baltimore, MD,  
Assistant Professor, Chemistry  
Associate Member of the Combined Graduate Program in  
Biochemistry and Molecular Biology  
Affiliate Assistant Professor in the Center for Advanced Sensor  
Technologies (CAST)

2007-2011 **University of California Santa Barbara**, Santa Barbara, CA,  
NIH-NRSA Postdoctoral Fellow, Chemistry and Biochemistry

### **Honors Received**

2016 Royce W. Murray Young Investigator Award – Society for  
Electroanalytical Chemistry

2009-2011 NIH-National Research Service Award Postdoctoral  
Fellowship

2010 Gordon-Kenan Research Seminar Chair – Gordon Research  
Conference in Electrochemistry

2008-2009 Santa Barbara Foundation Tri-Counties Bloodbank  
Postdoctoral Fellowship

2007 Gordon Research Conference Travel Award

2006 Graduate Travel Award- University of Utah

2003 The Cal Giddings Graduate Fellowship in Chemistry

### **Research Support**

2016-2019	\$360,000, source: NSF CMI, “ <i>Scanning Ion Conductance Microscopy Using Protein Channels</i> ,” role: PI
2015-2020	\$1,220,134, source: NIH NIGMS, “ <i>Aptamer-Hydrogel Hybrid Sensors for Continuous Therapeutic Drug Monitoring</i> ,” role: PI
2014-2016	\$407,083, source: NIH NIMH, “ <i>Nanoscale Sensors for Direct, Real-Time Monitoring of Gliotransmitter Release</i> ,” role: PI
2013-2014	\$20,000, source: UMBC SRAIS, “ <i>Aptamer-Hydrogel Sensors for Compatible Interfacing with Biology</i> ,” role: PI
2013	\$6,000, source: UMBC Summer Faculty Fellowship, “ <i>Aptamer-Hydrogel Sensors for Compatible Interfacing with Biology</i> ,” role: PI
2012-2013	\$20,000, source: UMBC SRAIS, “ <i>Nanoscale, Electrochemical Sensors for Direct, Real-Time Monitoring of Gliotransmitter Release</i> ,” role: PI
2012	\$6,000, source: UMBC Summer Faculty Fellowship, “ <i>Nanoscale, Electrochemical Sensors for Direct, Real-Time Monitoring of Gliotransmitter Release</i> ,” role: PI

### **Postdoctoral Fellows**

Dr. Juan Liu, January 2013 – March 2015 (Currently at post doc at Duke University)

Dr. Rotimi Olojo, February 2012 – May 2012 (Currently a lecturer at CCBC)

### **Ph.D. Students**

Lauren Schoukroun-Barnes, Ph.D. 2015, role: Chair

Florika Macazo, Ph.D. 2016, role: Chair

### **Master’s Students**

Melissa E. Dávila Morris, M.S. 2014, role: advisor, research mentor

Kuan-Chun Huang, M.S. 2013, role: advisor, research mentor

### **Undergraduate Students**

Samuillah Wagan, UMBC undergraduate research, September 2011 – July 2014, B.S. Biology 2013, role: research mentor, Current Location: University of St. Louis Medical School

James Taylor, MARC Scholar, UMBC undergraduate research, MARC U\*STAR, January 2012 – July 2014, role: research mentor, current location: Chemistry PhD program University of North Carolina

Zoë Spafford, Meyerhoff Scholar, HHMI Scholar, undergraduate research, May 2012 – May 2013, role: research mentor

Brenda Guitierrez, UMBC undergraduate research Meyerhoff Scholar, September 2013-Present, role: research mentor

Ethan Glaser, UMBC undergraduate research, January 2014 – Present, role: research mentor

Justine Lottermoser, UMBC undergraduate research, November 2014 – Present, role: research mentor

Nicholas Vaccaro, UMBC undergraduate research, January 2015 – Present, role: research mentor

Kaitlin Krueger, STEM Build research, Summer 2015, role: research mentor

Daniel Dorsu, STEM Build research, Summer 2015, role: research mentor

Jael Kibui, STEM Build research, Summer 2015, role: research mentor

Tonya Burge, Meyerhoff Scholar, undergraduate research, November 2015 – Present, role: research mentor

Inayah Entzminger, UMBC undergraduate research, December 2015 – Present, role: research mentor

### **High School Students**

Ally Heise, Catonsville High School, July 2015 – Present, role: research mentor

Mikhali Klosteridis, Catonsville High School, July 2015 – August 2015, role: research mentor

## **PUBLICATIONS, PRESENTATIONS, AND CREATIVE ACHEIVEMENTS**

### **Peer-Reviewed Works**

#### **2016**

1. L. R. Schoukroun-Barnes, F. C. Macazo, B. Gutierrez, J. Lottermoser, J. Liu, and R. J. White, "Reagentless, Structure-Switching, Electrochemical Aptamer-Based Sensors," *Ann. Rev. Anal. Chem.*, **2016**, 9, 163-181.
2. F. C. Macazo and R. J. White, "Bio-Inspired Protein Channel-Based Scanning Ion Conductance Microscopy (Bio-SICM) for Simultaneous Conductance and Specific Molecular Imaging," *J. Am. Chem. Soc.*, **2016**, 138, 2793-2801.

#### **2015**

3. L. R. Schoukroun-Barnes, E. P. Glaser, and **R. J. White**, "Heterogenous Electrochemical, Aptamer-Based Sensor Surfaces for Controlled Sensor Response," *Langmuir* **2015**, 31, 6563–6569.
4. L. R. Schoukroun-Barnes and **R. J. White**, "Rationally Designing Aptamer Sequences with Reduced Affinity for Controlled Sensor Performance,"

*Sensors* **2015**, *15*, 7754-7767. *Special Issue: Smart Materials for Switchable Sensors*.

5. F. C. Macazo, R. Karpel,, and **R. J. White**, "Monitoring Cooperative Binding Using Electrochemical DNA-Based Sensors," *Langmuir*, **2015**, *31*, 868-875.

#### **2014**

6. J. Liu, S. Wagan, M. Dávila Morris, J. Taylor, and R. J. White, "Achieving Reproducible Performance of Electrochemical, Folding Aptamer-Based Sensors on Microelectrodes: Challenges and Prospects," *Anal. Chem.* **2014**, *86*, 11417-11424.
7. F. C. Macazo and **R. J. White**, "Monitoring Charge Flux to Quantify Unusual Ligand-Induced Ion Channel Activity for use in Biological Nanopore-Based Sensors," *Anal. Chem.* **2014**, *86*, 5519-5525.
8. J. Liu, M. Dávila Morris, F. C. Macazo, L. R. Schoukroun-Barnes, and **R. J. White**, "The Current and Future Role of Aptamers in Electroanalysis," *Invited Critical Review, J. Electrochem. Soc.*, **2014**, *161*, H301-H313.
9. L. R. Schoukroun-Barnes, S. Wagan, and **R. J. White**, "Enhancing the Analytical Performance of Electrochemical RNA Aptamer-Based Sensors for Sensitive Detection of Aminoglycoside Antibiotics," *Anal. Chem.* **2014** *86*, 1131-1137.
10. R. J. Powell, **R. J. White**, R. T. Hill, "Merging Metabolism and Power: Development of a Novel Photobioelectric Device Driven by Photosynthesis and Respiration," *PLOS ONE*, **2014**, *9*, e86518.

#### **2013**

11. B. S. Ferguson, D. A. Hoggarth, D. Maliniak, K. Ploense, **R. J. White**, N. Woodward, K. Hsieh, A. J. Bonham, M. Eisenstein, T. E. Kippin, K. W. Plaxco, and H. T. Soh, "Real-Time, Aptamer-Based Tracking of Circulating Therapeutic Agents in Living Animals," *Sci. Transl. Med.*, **2013**, *5*, 213ra165
12. K.-C. Huang and **R. J. White**, "Random Walk on a Leash: A Simple Single-Molecule Diffusion Model for Surface-Tethered Redox Molecules with Flexible Linkers," *J. Am. Chem. Soc.* **2013**, *135*, 12808–12817.
13. L. R. Schoukroun-Barnes, S. Wagan, J. Lui, J. B. Leach, and **R. J. White**, "Biocompatible Hydrogel Membranes for the Protection of RNA Aptamer-Based Electrochemical Sensors," *Proc. SPIE*, **2013**, *8719*, 871901-871908.

#### **2012**

14. D. Kang, **R. J. White**, F. Xia, X. Zuo, A. Vallée-Bélisle, and K. W. Plaxco, "DNA Biomolecular-Electronic Encoder and Decoder Devices Constructed by Multiplex Biosensors," *Nat. Pub. Group Asia Mater.* **2012**, *4*, 1-6.
15. **R. J. White**, H. M. Kallewaard, K. Hsieh, A. S. Patterson, J. B. Kasehagen, K.J. Cash, T. Uzawa, H. T. Soh, and K. W. Plaxco, "Wash-free, Electrochemical Platform for the Quantitative, Multiplexed Detection of Specific Antibodies," *Anal. Chem.* **2012**, *84*, 1098-1103. Most Read Articles Analytical Chemistry January 2012.

#### **2011**

16. A. A. Rowe, A. J. Bonham, **R. J. White**, and K. W. Plaxco, "Fabrication of Electrochemical-DNA Biosensors for the Reagentless Detection of Nucleic Acids, Proteins and Small Molecules," *J. Vis. Exp.* **2011**, 52, 29221-29226.
17. K. Hsieh, **R. J. White**, B. D. Ferguson, K. W. Plaxco, Y. Xiao, H. T. Soh, "Polarity-Switching Electrochemical Sensor for Specific Detection of Single-Nucleotide Mismatches," *Angew. Chemie. Intl. Ed.* **2011**, 50, 11176-11180.
18. A. A. Rowe, A. J. Bonham, **R. J. White**, M. P. Zimmer, R. J. Yadgar, T. M. Hobza, I. Yaacov, K. W. Plaxco, "CheapStat: An Open-Source, "Do-It-Yourself" Potentiostat for Analytical and Educational Applications," *PLOS One*, **2011**, 6, e23783.
19. A. E. Abelow, **R. J. White**, K. W. Plaxco, and I. Zharov, "Nanoporous Silica Colloidal Films with Molecular Transport Gated by Aptamers Responsive to Small Molecules," *Coll. Czech CC* **2011**, 76, 683-694.

### 2010 and Earlier

20. T. Uzawa, R. R. Cheng, **R. J. White**, D. Makarov, and K. W. Plaxco, "A Mechanistic Study of Electron Transfer from the Distal Termini of Electrode-Bound, Single-Stranded DNAs," *J. Am. Chem. Soc.* **2010**, 132, 16120-16126.
21. A. E. Abelow, O. Schepelina, **R. J. White**, A. Vallée-Bélisle, K. W. Plaxco, and I. Zharov, "Biomimetic Glass Nanopores Employing Aptamer Gates Responsive to a Small Molecule," *Chem. Comm.*, **2010**, 46, 7984-7986.
22. F. Xia, **R. J. White**, X. Zuo, A. Patterson, Y. Xiao, D. Kang, X. Gong, K. W. Plaxco and A. J. Heeger, "An Electrochemical Supersandwich Assay for Sensitive and Selective DNA in Complex Matrices," *J. Am. Chem. Soc.* **2010**, 132, 14346-14348.
23. F. Xia, X. Zuo, R. Yang, **R. J. White**, Y. Xiao, D. Kang, X. Gong, A. J. Heeger and K. W. Plaxco, "Label-Free, Dual-Analyte Electrochemical Biosensors: A New Class of Molecular-Electronic Logic Gates," *J. Am. Chem. Soc.* **2010**, 132, 8557-8559.
24. **R. J. White**, A. A. Rowe, and K. W. Plaxco, "Re-engineering Aptamer Constructs for Reagentless, Self-Reporting Electrochemical Sensors," *Analyst* **2010**, 135, 589-594.
25. **R. J. White** and K. W. Plaxco, "Exploiting Binding-Induced Changes in Probe Flexibility for the Optimization of Electrochemical Biosensors," *Anal. Chem.* **2010**, 82, 73-76.
26. D. Kang, X. Zuo, R. Yang, F. Xia, K. W. Plaxco and **R. J. White**, "Comparing the Properties of Electrochemical-Based DNA Sensors Employing Different Redox Tags," *Anal. Chem.* **2009**, 81, 9109-9113.
27. **R. J. White** and K. W. Plaxco, "Engineering New Aptamer Geometries for Electrochemical Aptamer-Based Sensors," *Proc. SPIE* **2009**, 7321-5, 732105-1 – 132105-9.
28. Y. Xiao, K. J. I. Plakos, X. Luo, **R. J. White**, J. Qian, K. W. Plaxco and H. T. Soh, "Fluorescence Detection of Single Nucleotide Polymorphism via a Single, Self-Complementary, Triple-stem DNA Probe," *Angew. Chemie.* **2009**, 121, 4418-4422.
29. Y. Xiao, T. Uzawa, **R. J. White**, D. DeMartini and K. W. Plaxco, "On The Signaling of Electrochemical, Aptamer-Based Sensors: Collision- and Folding-Based Mechanisms," *Electroanalysis* **2009**, 21, 1267-1271.

30. A. A. Lubin, B. Vander Stoep Hunt, **R. J. White** and K. W. Plaxco, "The Effects of Probe Length, Probe Geometry and Redox-Tag Placement on the Performance of the Electrochemical E-DNA Sensor," *Anal. Chem.* **2009**, *81*, 2150-2158.
31. N. Phares, **R. J. White** and K. W. Plaxco, "Improving the Stability and Sensing of Electrochemical Biosensors by Employing Trithiol-Anchoring Groups in a Six-carbon Self-assembled Monolayer," *Anal. Chem.* **2009**, *81*, 1095–1100.
32. E. N. Ervin, **R. J. White**, and H. S. White, "Sensitivity and Signal Complexity as a Function of the Number of Ion Channels in a Stochastic Sensor," *Anal. Chem.* **2009**, *81*, 533-537.
33. **R. J. White**, N. Phares, A. A. Lubin, Y. Xiao, and K. W. Plaxco, "Optimization of Electrochemical Aptamer-Based Sensors via Optimization of Probe Packing Density and Surface Chemistry," *Langmuir* **2008**, *24*, 10513-10518.
34. E. N. Ervin, R. Kawano, **R. J. White**, and H. S. White, "Simultaneous Alternating and Direct Current Readout of Protein Ion Channel Blocking Events using Glass Nanopore Membranes," *Anal. Chem.* **2008**, *80*, 2069-2076.
35. **R. J. White** and H. S. White, "Electrochemistry in Nanometer-Wide Cells," *Langmuir* **2008**, *24*, 2850-2855.
36. **R. J. White**, E. N. Ervin, S. Daniel, T. Yang, P. S. Cremer, and H. S. White, "Single Ion Channel Recordings using Glass Nanopore Membrane Supports," *J. Am. Chem. Soc.* **2007**, *129*, 11766-11775.
37. **R. J. White** and H. S. White, "Influence of Electrophoresis Waveforms in Determining Stochastic Nanoparticle Capture Rates and Detection Sensitivity," *Anal. Chem.* **2007**, *79*, 6334-6349.
38. B. Zhang, J. Galusha, G. Wang, A. J. Bergren, R. M. Jones, **R. J. White**, E. N. Ervin, C. C. Cauley, P. Shiozawa, and H. S. White, "Bench-Top Method for Fabricating Glass-Sealed Nanodisk Electrodes, Glass Nanopore Electrodes, and Glass Nanopore Membranes of Controlled Size," *Anal. Chem.* **2007**, *79*, 4778-4787.
39. E. N. Ervin, **R. J. White**, T. G. Owens, J. M. Tang, and H. S. White, "AC Conductance of Transmembrane Protein Channels. The Number of Charged Residue Counter-ions in Transmembrane Proteins at Infinite Dilution," *J. Phys. Chem. B.* **2007**, *111*, 9165-9171.
40. J. H. Shim, J. Kim, G. S. Cha, H. Nam, **R. J. White**, H. S. White and R. B. Brown, "Glass Nanopore-Based Ion-Selective Electrodes," *Anal. Chem.* **2007**, *79*, 3568-3574.
41. **R. J. White**, B. Zhang, S. Daniel, J. M. Tang, E. N. Ervin, P. S. Cremer and H. S. White, "Ionic Conductivity of the Aqueous Layer Separating a Lipid Bilayer Membrane and a Glass Support," *Langmuir* **2006**, *22*, 10777-10783.
42. **R. J. White** and H. S. White, "Random Walks in Electron Transfer," *Anal. Chem.* **2005**, *77*, 214A-220A. Cover Article.
43. V. L. Jimenez, D. G. Georganopoulou, **R. J. White**, A. S. Harper, A. J. Mills, D. Lee, and R. W. Murray, "A Hexanethiolate Monolayer-Protected 38 Gold Atom Cluster," *Langmuir* **2004**, *20*, 6864-6870.

### Other Publications

44. **R. J. White**, "Artificial Receptors for Chemical Sensors: Book Review," *Anal. Bioanal. Chem.* **2011**, *401*, 3053-3056.

#### **Manuscripts In Preparation or Submitted for Publication**

45. L. R. Schoukroun-Barnes, F. C. Macazo, B. Gutierrez, J. Lottermoser, J. Liu, and **R. J. White**, "Reagentless Structure-Switching Electrochemical Aptamer-Based Sensors," *Ann. Rev. Anal. Chem. Submitted for Publication, September 2015*.
46. F. C. Macazo and **R. J. White**, "Protein Channel-Based Scanning Ion Conductance Microscopy (Bio-SICM) for Simultaneous Conductance and Specific Molecular Imaging," *J. Am. Chem. Soc. Under Review*.

#### **Invited Seminars at Universities**

1. **R. J. White**, "Designer Biosensors – Developing Fundamental Guidelines Driven by Bioanalytical Applications," Departmental Seminar, Georgia Tech University, Atlanta, GA, February 2016.
2. **R. J. White**, "Designer Biosensors – Developing Fundamental Guidelines Driven by Bioanalytical Applications," Departmental Seminar, Metropolitan State University of Denver, Denver, CO, February, 2016.
3. **R. J. White**, "Designer Biosensors – Developing Fundamental Guidelines Driven by Bioanalytical Applications," Departmental Seminar, University of Georgia, Athens, GA, January 2015.
4. **R. J. White**, "Designer Biosensors – Developing Fundamental Guidelines Driven by Bioanalytical Applications," Departmental Seminar, George Mason University, Richmond, VA November 2015.
5. **R. J. White**, "Designer Biosensors – Developing Fundamental Guidelines Driven by Bioanalytical Applications," Departmental Seminar, University of Michigan, Ann Arbor, October 2015.
6. **R. J. White**, "Designer Biosensors – Developing Fundamental Guidelines Driven by Bioanalytical Applications," Departmental Seminar, University of Washington, Seattle, WA, May 2015
7. **R. J. White**, "Designer Biosensors – Developing Fundamental Guidelines Driven by Bioanalytical Applications," Departmental Seminar, Lebanon Valley College, Annville, PA, November 2014.
8. **R. J. White**, "Compatibly Interfacing Sensors with Biology," Departmental Seminar, George Washington University, Washington DC, October 2014.
9. (F.C. Macazo) and **R.J. White**, "Bio-inspired Stochastic Nanopore Sensors using Unusual Ligand-Induced Ion Channel Activity of Hsc70", Institute of Chemistry Departmental Seminar, University of the Philippines, Diliman, Quezon City, Philippines, June 2014.
10. **R. J. White**, "Electrochemical DNA-Based Sensors: From Benchtop to Bedside," Invited Oral Presentation, Hood College, Frederick, MD, October 2012.
11. **R. J. White**, "Reengineering an Aptamer for use in Electrochemical Aptamer-Based Biosensors," Università di Roma Tor Vergata, October 2009.

### **Oral Presentations at National/International Conferences**

12. **R. J. White**, “Bio-SPM – A Scanned Probe Microscopy Using Single Ion Channels,” Pittcon 2016, Invited Talk in SEAC - Charles N Reilley Award and Royce W Murray Award Session, Atlanta, GA, March 2016.
13. (F.C. Macazo) and **R.J. White**, “Developing an Innovative Bio-Inspired Scanning Probe Microscopy (BioSPM) Approach to Map Specific Molecular Flux,” Pittcon 2016, Invited Talk in Organized Contributed Session: Society for Electroanalytical Chemistry (SEAC) – A Student Session in Electroanalysis, Atlanta, GA, March 2016.
14. (F. C. Macazo), R. L. Karpel, and **R. J. White**, “Using Electrochemical DNA-based (E-DNA) Sensors to Monitor Cooperative DNA-Protein Interactions,” American Chemical Society National Meeting, Symposium on Biochemical Ligands at Interfaces: from Molecular Scale Characterization to Devices, Boston, MA, August 2015.
15. (**R.J. White**), “Designer Biosensors – Developing Fundamental Guidelines Driven by Bioanalytical Applications,” 227<sup>th</sup> Electrochemical Society Meeting Invited Talk in Allen J. Bard Award in Electrochemical Science Session, Chicago, IL, May 2015.
16. (L. R. Schouckroun-Barnes) and **R. J. White**, “Biocompatible, Membrane Coated Electrochemical Aptamer-Based Sensors for Long-Term Monitoring in Complex Sample Matrices,” SPIE Defense, Security, and Sensing, Baltimore, MD, May 2015
17. (L. R. Schouckroun-Barnes) and **R. J. White**, “Rational Modification of Aptamers and Sensor Surfaces to Tune Electrochemical Aptamer-Based Sensor Responses,” Pittcon, New Orleans, LA, March 2015.
18. (F.C. Macazo) and **R. J. White**, “Small Scale ATP Measurements Using a New Biological Nanopore-Based Sensor Supported on Glass Nanopore (GNP) Membranes,” Pittcon, New Orleans, LA, March 2015.
19. (J. Liu) and **R. J. White**, “Building Electrochemical, Aptamer-Based Sensors on the Same Size Scale as a Cell,” Pittcon, New Orleans, LA, March 2015.
20. F. C. Macazo and (**R. J. White**), “Using Unusual Ion Channel Behavior to Build Nanopore Sensors,” Pittcon, Invited Talk in Organized Contributed Session: Electrochemistry at Nanoscale Structures, New Orleans, LA, March 2015.
21. L. R. Schouckroun-Barnes, E. Glaser, J. B. Leach, and (**R.J. White**), “Aptamer-Hydrogel Hybrid Surfaces for Stable Real Time Monitoring of Therapeutics,” Pittcon, Invited Talk in Symposia: SEAC - Electroanalysis from Benchtop to Bedside, New Orleans, LA, March 2015.
22. **R. J. White**, “Using Unusual Ion Channel Behavior to Build Nanopore Sensors,” Invited Oral Presentation at the VIII<sup>th</sup> International Symposium on Heat Shock Proteins in Biology & Medicine, Alexandria, VA, November 2014.
23. (F.C. Macazo) and **R.J. White**, “Bio-Inspired Stochastic Nanopore Sensors using Unusual Ligand-Induced Ion Channel Activity of Hsc70”, The Great Scientific Exchange (SciX) 2014, Reno-Tahoe, NV, September 2014.
24. (M. Dávila Morris) and **R. J. White**, “Electrochemical DNA-Based Sensors for ATP Monitoring in the Brain,” National Society for Advancement of Chicanos and Native Americans in Science (SACNAS) Meeting, San Antonio, TX, October 2013.



25. L. R. Schoukroun-Barnes, S. Wagan, J. Lui, J. B. Leach, and (**R. J. White**), "Interfacing Biosensors with Biology," SPIE Defense, Security, and Sensing, Baltimore, MD, May 2013.
26. K.- C. Huang and (**R. J. White**), "Random Walk on a Leash – A Simple Single Molecule Model for Flexibly Tethered Redox Molecules," Pittcon, Philadelphia, PA, March 2013, Invited Talk in Organized Contributed Session: Society for Electroanalytical Chemistry - Highlighting Young Investigators.
27. M. Dávila Morris, J. Lui, and (**R. J. White**), "Sensors for Monitoring ATP Release from Glial Cells," Pittcon, Philadelphia, PA, March 2013. Invited Talk in Symposia: New Analytical Techniques for Monitoring ATP and Adenosine.
28. **R. J. White**, "Electrochemical Aptamer-Based Sensors: From Benchtop to Bedside," *Invited Oral Presentation*, American Chemical Society National Meeting, Boston, MA, August 2010. Invited Talk in Special Section: A Half-Century at the Crossroads of Chemistry: In Honor of Royce Murray's 50 Years at Carolina,
29. **R. J. White**, "Electrochemical Aptamer-Based Sensors: From Benchtop to Bedside," Pittcon, Orlando, FL, March 2010. *New Investigators in Analytical Chemistry.*
30. **R. J. White**, "Reengineering an Aptamer for use in Electrochemical Aptamer-Based Biosensors," 4<sup>th</sup> International Conference on Surfaces, Coatings and Nanostructured Materials, Rome, Italy, October 2009.
31. **R. J. White**, "Folding-Based Electronic Biosensors," Nanoelectronic Devices for Defense and Security Conference, Ft. Lauderdale, FL, September 2009. Invited Talk.
32. **R. J. White**, "Reengineering an Aptamer for use in Electrochemical Aptamer-Based Biosensors," American Chemical Society National Meeting, Washington DC, August 2009.
33. **R. J. White**, "Engineering New Aptamer Geometries for Electrochemical Aptamer-Based Sensors," SPIE Defense, Security and Sensing, Orlando, FL, April 2009.
34. **R. J. White**, "Glass Nanopore Membranes as a Support for Single Ion Channel Recordings," California Nanosystems Institute Seminar Series, Santa Barbara, CA, December 2008. Invited Presentation.
35. (**R. J. White**), N. Phares, A. A. Lubin, and K. W. Plaxco, "Optimizing Electrochemical Aptamer-Based Sensors," 2008 Materials Research Society Fall Meeting, Boston, MA, December 2008.

#### **Oral Presentations at Regional Conferences/Symposia**

36. **R. J. White**, "Designer Biosensors: Building Sensors on the Same Size Scale of a Cell," 8<sup>th</sup> Frontiers in Chemistry and Biology Interface Symposium, Baltimore, MD, May 2015.
37. **R. J. White**, "Designer Biosensors: Building Sensors on the Same Size Scale of a Cell," University of Maryland School of Medicine, Biochemistry and Molecular Biology Retreat Baltimore, MD, May 2015.
38. (J. Taylor), **R. J. White**, "Characterizing Self-Assembled Monolayers on Microelectrode Surfaces," Undergraduate Research and Creative Achievement Day, Baltimore, MD, April 2013.

39. (M. Dávila Morris), **R. J. White**, "The Effects of Self-Assembled Monolayer Formation on the Performance of Electrochemical DNA-Based Sensors," UMBC Graduate Research Conference, Baltimore, MD, February, 2013.
40. **R. J. White**, "Electrochemical DNA-Based Sensors: From Benchtop to Bedside," Mid-Atlantic Regional Meeting, American Chemical Society, Baltimore, MD, June 2012.
41. (**R. J. White**), N. Phares, and K. W. Plaxco, "Optimizing Electrochemical Aptamer-Based Sensors," 42<sup>nd</sup> Annual Western Regional Meeting of the American Chemical Society, Las Vegas, NV, September 2008.

#### **Poster Presentations at National/International Conferences**

42. (B. Guitierrez) and **R. J. White**, "Gold Microwire Sensors for the Cellular Microenvironment," American Chemical Society National Meeting, Boston, MA, August 2015.
43. (L. R. Schoukroun-Barnes) and **R. J. White**, "Enhancing the Analytical Performance of Electrochemical, Aptamer-Based Sensors," , " Gordon Research Seminar and Gordon Conference in Bioanalytical Sensors, Newport, RI, June 2014.
44. **R. J. White**, "Random Walk on a Leash – A Simple Single Molecule Model for Flexibly Tethered Redox Molecules," Gordon Conference in Electrochemistry, Ventura, CA, January 2014.
45. (F. C. Macazo) and **R. J. White**, "Monitoring Charge Flux to Quantify ATP Using Ion Channel Behavior of Hsc70," Gordon Research Seminar and Gordon Conference in Electrochemistry, Ventura, CA, January 2014.
46. (Z. Spafford), **R. J. White**, "Bio-Inspired, Ligand Gated Solid State Nanopores," National Annual Biomedical Research Conference for Minority Students, San Jose, CA, November 2012.
47. (M. Dávila Morris), **R. J. White**, "Improving the Signaling, Sensitivity, and Affinity of Electrochemical Aptamer-Based Sensors by using Ultra Micro Electrodes," National Science Foundation, Annual Joint Meeting, Washington, DC, June 2012.

#### **Poster Presentations at Regional Conferences/Symposia**

48. (F.C. Macazo) and **R.J. White**, "Specific and Quantitative ATP-Dependent Ion-Channel Activity of Heat Shock Cognate 70", 7th Annual Frontiers at the Chemistry-Biology Interface Symposium (FCBIS), The University of Maryland School of Pharmacy, Baltimore, MD, May 2014.
49. (J. Taylor), **R. J. White**, "A LabVIEW Based Approach to Electrochemical Analysis," Summer Undergraduate Research Festival, Baltimore, MD, August 2013.
50. (S. Wagan), **R. J. White**, "Biocompatible Hydrogel Coated Electrodes for Long Term In Vivo Sensing," Undergraduate Research and Creative Achievement Day, Baltimore, MD, April 2013.
51. (M. Dávila Morris), **R. J. White**, "Nanoscience, Electrochemistry, and the Biological Interface," A Look Ahead Symposium XVI, Baltimore, MD, April 2013.

52. (M. Dávila Morris), **R. J. White**, “Improving the Signaling, Sensitivity, and Affinity of Electrochemical Aptamer-Based Sensors by using Ultra Micro Electrodes,” Mid-Atlantic Regional Meeting, American Chemical Society, Baltimore, MD, June 2012
53. (M. Dávila Morris), **R. J. White**, “Improving the Signaling, Sensitivity, and Affinity of Electrochemical Aptamer-Based Sensors by using Ultra Micro Electrodes,” UMBC Graduate Research Conference, Baltimore, MD, April 2012.
54. (J. Taylor), **R. J. White**, “Monitoring Mixed Self Assembled Monolayer Formation on Micro- and Nano- Electrodes for Electrochemical DNA-Based Sensors,” Undergraduate Research and Creative Achievement Day, Baltimore, MD, April 2012.

## **SERVICE**

### **Departmental Activities**

Spring 2013- Present	Organizer of “How to Write a NSF Graduate Fellowship Workshop” Series
Winter 2013	Just for Juniors (departmental representative)
Fall 2011 – Present	Graduate Student Recruiting and Admissions Committee (member)
Spring 2012	Departmental Seminar Series (organization and scheduling)

### **University Activities**

Summer 2014	NIH STEM Build Mentor (3 community college researchers)
April 2015	Graduate Research Conference Reviewer
Summer 2014	NSF Nanohub Mentor (2 community college researchers)
August 2014	College of Natural and Mathematical Sciences Dean
August 2013	Nominated Representative for University Retreat
August 2013	New Faculty Welcome (“Advice for new faculty from former new faculty” panelist)
February 2013	2013 UMBC Annual Graduate Research Symposium (judge)
October 2012	15 <sup>th</sup> Annual Undergraduate Research Symposium in the Chemical and Biological Sciences (judge)
October 2011	14 <sup>th</sup> Annual Undergraduate Research Symposium in the Chemical and Biological Sciences (judge)

**Advisee Students:** 22 Undergraduate chemistry and biochemistry students

### ***Ph.D./M.S. Student’s Committees Served/Serving On:***

Robert Wimmer	Ph.D. Committee Member (University of Maryland, Baltimore, Biochemistry)
William Cunning	Ph.D. Committee Member (Chem/Biochem)
Nicole Carbonaro	Ph.D. Committee Member (Chem/Biochem)
Gregory Winter	Ph.D. Committee Member (Chem/Biochem)
Johan Melendez	Ph.D. Committee Member (Chem/Biochem)

Lauren Schoukroun-Barnes	Ph.D. Committee Chair/Advisor (Chem/Biochem)
Delauren McCauley	Ph.D. Committee Member (Chem/Biochem)
Florika Macazo	Ph.D. Committee Member/Advisor (Chem/ Biochem)
Scott Riley	Ph.D. Committee Member (Chem/Biochem)
Pietro Strobria	Ph.D. Committee Member (Chem/Biochem)
Evgenia Barannikova	Ph.D. Committee Member (Chem/Biochem)
Scott Riley	Ph.D. Committee Member (Chem/Biochem)
Alexander Winton	Ph.D. Committee Member (Chem/Biochem)
Tonya Santaus	Ph. D. Committee Member (Chem/Biochem)
Noah Robinson	Ph. D. Committee Member (Chem/Biochem)
Helena Gaifam	M.S. Committee Member (Chem E.)
Kuan-Chun Huang	M.S. Committee Chair/Advisor (Chem/Biochem)
Melissa Dávilla Morris	M.S. Committee Chair/Advisor (Chem/Biochem)
Arundhati Venkatasubramanian	Ph.D. Committee Member (Chem E.)

### **Professional Activities**

June 2016	Ad Hoc Reviewer NIH Instrumentation and Systems Development Study Section
March 2016	Co-Organizer of Symposium, "Electrical and Electrochemical Sensing and Detection based on Nucleic Acid Recognition," Pittcon, Atlanta, GA.
January 2016	Reviewer, NSF Graduate Research Fellowship, Bioengineering
October 2015	Early Career Reviewer NIH Instrumentation and Systems Development Study Section
May 2015	Session Chair, "Allen J. Bard Award in Electrochemical Science Session" at the 227 <sup>th</sup> Electrochemical Society Meeting, Chicago, IL.
May 2015	Co-Chair 8th Frontiers in Chemistry and Biology Interface Symposium, Baltimore, MD.
April 2015	Program Committee Member for "Smart Biomedical Sensors" at SPIE Defense, Security, and Sensing 2015, Baltimore, MD.
April 2015	Session Chair, "Smart Biomedical Sensors" at SPIE Defense, Security, and Sensing 2015, Baltimore, MD.
May 2014	Session Chair, "Smart Biomedical Sensors" at SPIE Defense, Security, and Sensing 2014, Baltimore, MD.
May 2013	Session Chair, "Electrochemical and Noninvasive Sensing for Rapid Patient Monitoring" at SPIE Defense, Security, and Sensing 2013, Baltimore, MD.

May 2013                      Session Chair, "Smart Materials for Biorecognition and Biosensing," at SPIE Defense, Security, and Sensing 2013

June 2012                      Session Chair, "Bioanalytical Sensors," at Mid-Atlantic Regional Meeting of the American Chemical Society

January 2010                      Gordon Kenan Research Seminar Chair – Gordon Research Conference in Electrochemistry

**Journal Reviewer for:** *Journal of the American Chemical Society, Nature Chemistry, Proceeds of the National Academies of Sciences, Analytical Chemistry, Nature, Langmuir, ACS Nano, PLoS One, Sensors, Nucleic Acid Research, BioNanoScience, Biosensors and Bioelectronics, Chemical Communications, Cell Stress and Chaperones, Journal of Structural Biology, Angewandte Chemie, Analyst*

**Proposal Reviewer for:** National Institutes of Health, National Science Foundation, American Chemical Society, Department of Defense National Defense Science and Engineering Graduate Fellowship, Army Research Office, National Science Foundation Graduate Research Fellowship Program

**Affiliations**

2006-Present      The American Chemical Society

2008-09              Materials Research Society

2009-Present      Society for Electroanalytical Chemistry

2012-Present      American Association for the Advancement of Science

2014-Present      The Electrochemical Society

I certify that this document is accurate and true.

Ryan J. White

Wednesday, December 2, 2015