Michael Brian Ramey

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Academic Preparation

Ph.D. in Organic Chemistry (4/2001): Department of Chemistry, University of Florida, Gainesville, FL.

Concentrations: Synthesis of Organic Molecules capable of Palladium Catalyzed Cross Coupling Reactions, Palladium Catalyzed Cross-Coupling Polymerizations, Characterization of Monomers and Polymers via ^{1}H and ^{13}C NMR, Ultraviolet-Visible Absorption and Fluorescence Spectroscopy, Thermogravimetric Analysis (TGA), and Differential Scanning Calorimetry (DSC).

Dissertation: *Synthesis of Variable Bandgap Conjugated Polyelectrolytes via Metal Catalyzed Cross-Coupling Reactions*

Advisor: Dr. John R. Reynolds

B.S. in Chemistry/Polymer Option (5/1996)**:** Virginia Polytechnic and State University, Blacksburg, VA.

Undergraduate Research: Research assistant to graduate students involved in the synthesis and characterization of monomers for the production of new poly(amic acid) salt precursors to high temperature resistant polyimides.

Advisor: Dr. Judy S. Riffle

GPA: 3.84 (4.00), Summa Cum Laude

Two-year Initial College Experience: University of Virginia at Wise (formerly Clinch Valley College), Wise, VA 1991-1993.

Faculty Advisor: Dr. Van Daniel

GPA: 3.87 (4.00); Subsequent transfer to Virginia Tech

Professional Experience

Assistant Professor of Chemistry (current)**:** Appalachian State University, Boone, NC

Research and Responsibilities: Primary teaching assignments include instruction in both the laboratory and lecture sections of sophomore Organic Chemistry each semester. Additional experience in teaching General Chemistry / General Science laboratory sections (1 / 2) has been acquired. Development and offering of Special Topics in Chemistry: Polymer Chemistry at the junior/senior undergraduate level in Fall 2003. Current research interests involve an undergraduate research program into the development of new polymeric materials for fuel cell membranes and photo-optical applications.

Department of Defense Research Chemist (5/01 – 8/02):
United States Air Force Research Laboratories, Wright Patterson Air Force Base, Dayton, OH.

Research and Responsibilities: Investigations into the synthesis of new high molecular weight polybenzthiazoles (PBZTs), polybenzoxazoles (PBOs), and polybenzimidazoles (PBIs) via a liquid crystalline polymerization in polyphosphoric acid. Property enhancements desired to improve the PBX polymers include increased compressive strength and incorporation of pendant sulfonic acid functionalities into the polymer backbone for use in fuel cell membranes. Responsibilities included bench-level synthesis and characterization of high molecular weight, fiber forming polymers and instruction/supervision of undergraduate research assistants from Wright State University, Dayton, OH.

Teaching Assistant (8/96-12/00): University of Florida, Gainesville, FL.

Responsibilities: Supervised and evaluated six general chemistry laboratory classes (20 students per each section) over the course of two semesters under the direction of Dr. James Horvath. Staffed office hours and help sessions, quiz preparation, and exam grading for undergraduate organic chemistry classes taught by dissertation advisor, Dr. John Reynolds.

Summer Research Assistant (5/96-8/96): Milliken and Co., Spartanburg, SC.

Responsibilities: Performed bench top synthesis and electrochemistry in the development of polyaniline coatings for use in electrochromic textile applications as part of the *Milliken Summer Research Challenge 1996* under the guidance of Dr. Kirkland Vogt.

Intrinsic Viscosity Technician (8/94-12/95): Virginia Tech, Blacksburg, VA.

Responsibilities: Preparation and measurement of intrinsic viscosity of polymer samples under the direction of Dr. Judy Riffle and Dr. James E. McGrath.

Publications

Ramey, M.B.; Hiller, J-A.; Rubner, M.F.; Tan, C.; Schanze, K.S.; Reynolds, J.R. "Amplified Fluorescence Quenching and Electroluminescence of a Cationic Poly(p-phenylene-co-thiophene) Polyelectrolyte**"** *Macromolecules***, 2005,** *38, 234*.

Harrison, B.S.; Ramey, M.B.; Schanze, K.S.; Reynolds, J.R. "Amplified Fluorescence Quenching in a Poly(*p*-phenylene) Based Cationic Polyelectrolyte" *J. Amer. Chem. Soc.*, **2000**, *122*, 8561.

Ramey, M.B.; Reynolds, J.R. "Tuning the Emission Wavelength of a Series of Conjugated Polyelectrolytes" *Polymer Preprints*, **1999**, *40(2)*, 1208.

Balanda, P.B.; Ramey, M.B.; Reynolds, J.R. "Water-Soluble and Blue Luminescent Cationic Polyelectrolytes Based on Poly(*p*-phenylene)" *Macromolecules*, **1999**, *32*, 3970.

Chang, S.C.; Bharathan, J.; Helgeson, R.; Wudl, F.; Yang, Y.; Ramey, M.B.; Reynolds, J.R. "Dual-color Polymer Light-Emitting Pixels Processed by Hybrid Inkjet Printing" *Appl. Phys. Lett.*, **1998**, *73*, 2561.

Presentations

Invited Seminar Presentation: *"Photo and Electro Active Materials Design within an Undergraduate Research Framework"* Department of Chemistry, East Tennessee State University, Johnson City, TN. Feb. 6, 2004.

Ramey, M.B.; Balanda, P.B.; Baur, J.; Woo, W-K.; Reynolds, J.R.; Rubner, M.F. "Conjugated, Luminescent, and Redox Active Polyelectrolytes for Use in Electrostatic Self Assembly" *MRS 1998 Fall Meeting* in Boston, MA., Poster Presentation.

Grant Proposals

1. Ramey, Michael; Henson, Richard. *"The Appalachian State University Science for Scholarship, Teaching, and Research (SciSTAR) Program"* Submitted to the Division of Undergraduate Education Division of the NSF: STEP Program Solicitation. Status: Under Review [$ 968,352 NSF/ 5 years] Involvement: PI Feb. 2005.

2. Ramey, Michael. "*Polyelectrolytes for Ionic Conduction in Fuel Cells and Rechargeable Batteries"*. Appalachian State University, University Research Council. Status: Funded $2,419 (1 year) Involvement: PI. April 2005.

3. Bennett, Nicole; Ramey, Michael; Wheeler, Dale; Cartaya-Marin, Claudia; Holder, Grant. *"Providing Students with a Complete Toolbox for Chemical Analysis: Adaptation and Implementation of Problem Based Experiments Across the Curriculum at Appalachian State University"* Submitted to the Curriculum, Laboratory, and Instructional Division of the NSF. Status: Funded [$114,480 NSF; $139,488 Appalachian State University/ 3 years] Involvement: Co-PI. Dec. 2003.

4. Combs, John; Ramsdell, Jeffrey; Grady, Dennis; Ramey, Michael; Tiller, Jeffrey. "*Blue Ridge Clean Hydrogen Alliance*" Submitted to Division of Engineering Education and Centers of the NSF, Partnership for Innovation. Status: Not Funded, Involvement: Co-PI. May 2004.

5. Lea, Russ; Donovan-Merkert, Bernadette; Nile, Terry; Pukkila, Patricia; Barthalmus, George; Butcher, David. *"University of North Carolina CHRYSALIS: Institute for Research Intensive Undergraduate Education in Chemistry and Selected Allied Interdisciplinary Sciences"* Status: Not Funded Involvement: Senior Personnel Involvement. Jan 2004.

6. Ramey, Michael. *"Water-Soluble Conjugated Polymers for Use in Stimuli Induced Color Change Detection Applications"*. Appalachian State University, University Research Council. Status: Funded $3,619 (1 year) Involvement: PI. May 2003.

7. Holder, Grant; Ramey, Michael; Bennett, Nicole. "*The STEM/Research Scholars Program: A Proposal to Increase Enrollment and Retention in Selected STEM Programs at Appalachian State University*" Submitted to the Curriculum, Laboratory, and Instructional Division of the NSF. Status: Not Funded Involvement: Co-PI. May 2003.

8. Holder, Grant; Ramey, Michael; Bennett, Nicole; Eagle, Cassandra; Cartaya-Marin, Claudia. *"The Importance of Early Contact and Research in Attracting Women to Chemistry: A Proposal to Expand and Evaluate a Promising Action Model as a Three-Year Demonstration Projec*t" Submitted to the NSF Division of Human Resource Development; Gender Diversity in STEM Education. Status: Full Proposal not requested. Involvement: Co-PI. Jan. 2003

9. Holder, Grant; Mason, Andrew; Breiner, Steven; Ramey, Michael. "*Increasing the Reality and Effectiveness of Instruction of Forensic, Environmental, Instrumental, and Polymer Laboratories by Incorporating a "Whole Process" Strategy and LC-MS Tech*" Submitted to the NSF Division of Undergraduate Education; CCLI-Adaptation and Implementation. Status: Not Funded Involvement: Co-PI. Nov. 2002.

Honors and Awards

Air Force Palace Knight Program (8/99-5/01): A competitive program that included graduate school funding (tuition and salary) followed with a full-time position in the Air Force Research Laboratories, post graduation.

1999 Butler Polymer Research Laboratory Award (University of Florida): Awarded in recognition of scholarly achievement, publication quality, and service to the laboratories as a graduate student in the George and Josephine Butler Research Laboratories, a part of the Chemistry Department of the University of Florida. Professors, Dr. Kenneth B. Wagener, Dr. Randy Duran, and Dr. John R. Reynolds, supervise the polymer laboratories with approximately 20-25 total graduate students working under their guidance.

Professional Memberships

American Chemical Society / Polymer Division
Alpha Chi Sigma (Professional Chemistry Fraternity)
American Institute of Chemists
Phi Beta Kappa

References

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