

ARUN TIMOTHY ROYAPPA

Department of Chemistry
University of West Florida
11000 University Parkway
Pensacola, FL 32514
Phone: (850)474-2028
FAX: (850)474-2621
E-mail: royappa@uwf.edu
<http://uwf.edu/royappa>

Education

- Massachusetts Institute of Technology** *Cambridge, MA*
9/85-2/92 Ph.D. in Physical Chemistry, February 1992. Ph.D. thesis on "Novel Langmuir-Blodgett Films of Electrically Conducting Polyion Complexes and Diblock Copolymers." Thesis research conducted under the supervision of Prof. Michael F. Rubner of the Department of Materials Science & Engineering and Prof. Robert J. Silbey of the Department of Chemistry.
- Indiana University** *Bloomington, IN*
9/81-6/85 Bachelor of Science in Chemistry with Highest Distinction, June 1985. Undergraduate honors thesis on "Theoretical Studies of Photoexcitation and Photoionization Processes Involving Selected High-Lying Valence Orbitals in Nickel Carbonyl, NiCO."

Awards and Honors

Faculty Award for Excellence in Undergraduate Teaching and Advising, 2012, 2007, 2004, 2000
Distinguished Teaching Hall of Fame (for receiving third career Distinguished Teaching Award), University of West Florida, 2009
Distinguished Teaching Award, University of West Florida, 2009, 2003, 1998
Passer Education Award, Division of Chemical Education, American Chemical Society, 2008, 2001
Gabor Award for Excellence, University of West Florida, 2008
Who's Who Among America's Teachers, 2002
Golden Apple Award for Teacher of the Year, The Foundation for Excellence in Education, 1999
Sigma Xi, The Scientific Research Society, elected 1992
Phi Beta Kappa, 1985
Indiana University Undergraduate Science Research Prize, 1985
Outstanding B.S. Chemistry Major of the Class of 1985
American Institute of Chemists Student Award, 1985
Ira E. Lee Chemistry Scholarship, 1984
R. J. Grim Scholarship in Chemistry, 1984
Indiana University Undergraduate Research Scholarship in Chemistry, 1983
Golden Key National Honor Society, 1985
Phi Eta Sigma Freshman Honor Society, 1982
Alpha Lambda Delta Freshman Honor Society, 1982

Experience

- University of West Florida** *Pensacola, FL*
5/11-present Professor of Chemistry. Teaching responsibilities include lecture and laboratory courses in Chemistry for Non-Science Majors, General Chemistry, Physical Chemistry, and Polymer Science. Research interests include functionalized hyperbranched polymers and mathematical modeling of multivariable systems.
- 3/04-5/11 Associate Professor of Chemistry.
- 8/96-3/04 Assistant Professor of Chemistry.
- PerSeptive Biosystems, Inc. (now a part of Life Technologies)** *Cambridge, MA*
9/93-5/96 Senior Research Scientist at analytical equipment company serving pharmaceutical and biotechnology sectors. Responsible for studying structure-property relationships of perfusive polymeric chromatography media, designing new supports for hydrophobic interaction chromatography, and streamlining production.

Massachusetts Institute of Technology *Cambridge, MA*
2/92-9/93 Postdoctoral Research Associate in the Department of Chemical Engineering with Prof. Linda G. Cima. Designed, developed and characterized structure-property relationships in novel polymeric biomaterials for tissue engineering applications, particularly liver cell culture and transplantation.

1985-1993 Research Assistant in the Departments of Chemistry and Materials Science & Engineering. Experience in synthesis, characterization and structure-property studies of conjugated conducting polymers. Teaching Assistant for Undergraduate Thermodynamics and Kinetics, and Undergraduate Polymer Science Lab. Supervised undergraduate research projects in the synthesis and characterization of polymeric biomaterials and Langmuir-Blodgett films of conducting polymers under the auspices of the MIT Undergraduate Research Opportunities Program. System Manager for MicroVAX II computer with approximately 30 users.

Indiana University *Bloomington, IN*
1983-1985 Research Assistant in the Department of Chemistry. Carried out LCAO-MO SCF calculations and Stieltjes imaging of molecular orbitals of NiCO. Assistant Instructor in the Department of Chemistry and Department of Mathematics. Taught General Chemistry Lab, Chemistry for non-majors and Discrete Mathematics.

Grants and Consulting

2009 Co-Principal Investigator (along with others from science departments at UWF, and school board staff from local counties) on a \$344,491 grant for teacher quality improvement from Florida Department of Education.

2009 Co-Principal Investigator, with seven others from Chemistry and Biology departments at UWF, on a \$60,000 (mine is one-eighth share) interdisciplinary undergraduate research grant from Merck Foundation/AAAS.

2007 Senior Key Personnel (along with five other PIs, etc., from UWF and staff from School Board of Escambia County, Florida), on a \$1,499,563 grant for educational software development from Florida Department of Education.

2004 Co-Principal Investigator, with five others from Chemistry and Biology departments at UWF, on a \$60,000 (mine is one-sixth share) interdisciplinary undergraduate research grant from Merck Foundation/AAAS.

2000-2003 Sole PI on four \$7,500 grants awarded by Florida State University Research Foundation for summer research support, plus three grants of \$4,500 each for student support.

2001 Preceptor for a \$400 Grant-In-Aid-of-Research (GIAR) awarded by Sigma Xi to my student Michael Vogt.

1998 Sole PI on a \$44,554 grant awarded by the National Science Foundation for the development of an interdisciplinary foundational course in Polymer Chemistry with accompanying laboratory.

Ongoing Scientific consultant to Plasmine Technology (Pensacola, FL); Avista Technologies (San Marcos, CA); Applied Biosystems (Cambridge, MA); Pall Corporation (Pensacola, FL); CERA Inc. (Pensacola, FL) and Globalinx, Inc. (Wayland, MA) on polymer synthesis and characterization.

Professional Membership

American Chemical Society

Languages German, French, Dutch

Citizenship U.S. citizen

References Prof. Michael T. Huggins, University of West Florida, phone (850)474-2741
Prof. Chandra Prayaga, University of West Florida, phone (850)474-2062
Prof. Michael F. Rubner, MIT, phone (617)253-4477

Publications and Presentations

Refereed Journal Articles (UWF student co-authors underlined)

1. A. T. Royappa, V. Suri, S. E. Genet and D. J. Pope, "Some New Closed-Form Empirical Modified Lennard-Jones Potentials," *Journal of Undergraduate Chemistry Research* **9**, p. 102 (2010).
2. Y.-C. Huang, A. T. Royappa, S. Tundel, K. Tsukamoto and V. Sharma, "Biocompatibility of Polyglycidol with Human Peripheral Blood Mononuclear Cells," *Journal of Applied Polymer Science* **111**, p. 2275 (2009).
3. A. T. Royappa, V. Suri and J. R. McDonough, "Comparison of Empirical Closed-Form Functions for Fitting Diatomic Interaction Potentials of Ground State First- and Second-Row Diatomics," *Journal of Molecular Structure* **787**, p. 209 (2006).
4. A. T. Royappa and R. L. McDaniel, "Copolymerization of Glycidol with Functionalized Phenyl Glycidyl Ethers," *Journal of Applied Polymer Science* **97**, p. 1462 (2005).
5. H. Zhang, A. F. Nitzman and A. T. Royappa, "Statistical Modeling and Sizing Determination Guides for Dispersed Rosin Sizes," *TAPPI Journal* **3**, p. 3 (2004).
6. A. T. Royappa, M. L. Vogt and V. Sharma, "Composition and Long-term Stability of Polyglycidol Prepared by Cationic Ring-Opening Polymerization," *Journal of Applied Polymer Science* **91**, p. 1344 (2004).
7. A. F. Nitzman and A. T. Royappa, "Sizing Variations of Dispersed Rosin Sizes with Fortification, Hardness, pH and Temperature," *TAPPI Journal* **2**, p. 8 (2003).
8. A. T. Royappa, "Synthesis and Characterization of a Hyperbranched Copolymer," *Journal of Chemical Education* **79**, p. 81 (2002).
9. A. T. Royappa, D. D. Steadman, T. L. Tran, P. T. Nguyen, C. S. Prayaga, B. Cage and N. Dalal, "Synthesis of Sulfonated Polyaniline by Polymerization of the Aniline Heterodimer 4-aminodiphenylamine-2-sulfonic acid," *Synthetic Metals* **123**, p. 273 (2001).
10. A. T. Royappa, N. Dalal and M. W. Giese, "Amphiphilic Copolymers of Glycidol with Nonpolar Epoxide Comonomers," *Journal of Applied Polymer Science* **82**, p. 2290 (2001).
11. A. T. Royappa, R. S. Saunders, M. F. Rubner and R. E. Cohen, "Langmuir-Blodgett Films of Conducting Diblock Copolymers," *Langmuir* **14**, p. 6207 (1998).
12. A. T. Royappa, "On the Copolymerization of Epichlorohydrin and Glycidol," *Journal of Applied Polymer Science* **65**, p. 1897 (1997).
13. C. H. Paul and A. T. Royappa, "Acid Binding and Detritylation During Oligonucleotide Synthesis," *Nucleic Acids Research* **24**, p. 3048 (1996).
14. A. T. Royappa and M. F. Rubner, "Novel Langmuir-Blodgett Films of Conducting Polymers. I. Polyion Complexes and Their Heterostructures," *Langmuir* **8**, p. 3168 (1992).
15. J. H. Cheung, E. Punkka, M. Rikukawa, R. B. Rosner, A. T. Royappa and M. F. Rubner, "New Developments in the Langmuir-Blodgett Manipulation of Electroactive Polymers," *Thin Solid Films* **210/211**, p. 246 (1992).

Presentations

1. C. Renfro, S. Beck, S. Alsheikh, C. Prayaga and A. T. Royappa, "Resonance Circuit with a Nonlinear Liquid Crystal Capacitor," poster presented at the American Physical Society meeting, Boston, MA (2012).

2. C. Russo, M. Vashi and A. T. Royappa, "Polymerization of 3-oxetanol," Student Scholars Symposium, UWF (2011). This poster won the award for best presentation in Chemistry.
3. J. Gray, S. Drye, S. Beck, D. North, A. T. Royappa, L. Ujj and C. Prayaga, "Fluorescence of CdSe nanoparticles in the liquid crystal 8CB near the phase transitions," Student Scholars Symposium, UWF (2011). This poster won the award for best presentation in Physics.
4. S. Beck, J. Gray, D. North, S. Drye, C. Prayaga, A. T. Royappa and L. Ujj, "Spectral Measurements of Fluorescence of CdSe nanoparticles in Liquid Crystals near Phase Transition," poster presented at the Student Scholars Symposium, UWF (2011).
5. D. North, S. Beck, J. Gray, S. Drye, C. Prayaga, L. Ujj and A. T. Royappa, "Fluorescence decay of CdSe nanoparticles in Liquid Crystals near Phase Transitions," poster presented at the Student Scholars Symposium, UWF (2011).
6. J. Gray, S. Drye, D. North, S. Beck, A. T. Royappa, L. Ujj and C. Prayaga, "Fluorescence of CdSe nanoparticles in the Liquid Crystal 8CB near the Phase Transitions," poster presented at the American Physical Society meeting, Dallas, TX (2011).
7. S. Beck, J. Gray, S. Drye, D. North, A. T. Royappa, C. Prayaga and L. Ujj, "Spectral Measurements of Fluorescence of CdSe nanoparticles in Liquid Crystals near Phase Transitions," poster presented at the American Physical Society meeting, Dallas, TX (2011).
8. D. North, S. Beck, J. Gray, S. Drye, C. Prayaga, L. Ujj and A. T. Royappa, "Fluorescence decay of CdSe nanoparticles in Liquid Crystals near Phase Transitions," poster presented at the American Physical Society meeting, Dallas, TX (2011).
9. A. T. Royappa, "Hyperbranched Polymers and Copolymers of Glycidol," Department of Chemistry, Michigan Technological University, Houghton, MI (2011).
10. C. L. Russo, M. R. Vashi and A. T. Royappa, "Synthesis and Characterization of Hyperbranched Poly(3-oxetanol)," poster presented at the 1st Annual Florida Statewide Student Research Symposium, Jacksonville, FL (2011).
11. A. T. Royappa, "Hyperbranched Polymers and Copolymers of Glycidol," Department of Chemistry, UWF (2010).
12. L. Ujj, F. Bartha, Z. Chen, C. Prayaga, A. T. Royappa, C. Amos and M. Tsukuda, "Polarization Sensitive CARS Investigations of Controlled Molecular Rotations," poster presented at the XXII International Conference on Raman Spectroscopy, Boston, MA (2010).
13. R. Dickinson, L. Ujj, A. T. Royappa, F. Tone and G. Wu, "Distribution of Non-uniform Demagnetization Field of Bulk Samples in NMR Spectroscopy and Frequency Shift Analysis," American Physical Society meeting, Portland, OR (2010). This poster was also presented at the SEASTARS poster symposium at UWF the same year.
14. C. Amos, R. Clay, A. Corliss, S. Miller, L. Rex, J. Perry, C. Prayaga, A. T. Royappa, M. Tsukuda and L. Ujj, "Dielectric Characterization of Liquid Crystal Phases of 4'-Octyl-4-biphenylcarbonitrile," SEASTARS poster symposium, UWF (2008).
15. "Polymers and Plastics Recycling," Pensacola Local Section of the American Chemical Society (2008).
16. C. Amos, B. Clark, D. Mallernee, T. Reese, G. L. Johns, A. T. Royappa and P. Vaughan, "Preparation and Optical Characterization of Ultra Thin Films of Cholesterol in Eicosanoic Acid," SEASTARS poster symposium, UWF (2007).
17. T. Reese, B. Clark, C. Clanton, G. L. Johns, A. Williams, C. Jones, C. Amos, D. Mallernee, E. Clemons, A. T. Royappa and P. Vaughan, "Temperature Dependent Infrared Absorption Spectrum of Mono-Molecular Layer Deposits of 4'-Octyl-4-biphenylcarbonitrile (8CB)," SEASTARS poster symposium, UWF (2007).
18. K. Tsukamoto, Y.-C. Huang, V. Sharma and A. T. Royappa, "Attachment of Interleukin-15 to Polyglycidol," SEASTARS poster symposium, UWF (2005).

19. "Plastics and Plastics Recycling," Department of Physics, UWF (2003).
20. A. T. Royappa, "Initiating and Developing Experiments for an Undergraduate Course in the Fundamentals of Polymer Science," invited paper presented at the National Meeting of the American Chemical Society in Boston, MA (2002).
21. "Hydrophobic Interaction Chromatography," Pall Corporation, Pensacola, FL (2002).
22. R. Sisko, A. Wade, J. Cook, L. Ujj, C. Prayaga and A. T. Royappa, "Preparation and Characterization of Langmuir-Blodgett Films of Mixtures of Arachidic Acid and Stilbene Dye," paper presented at Symposium on Undergraduate Research in Mathematical Sciences in Hattiesburg, MS (2001).
23. A. T. Royappa, N. Dalal and M. W. Giese, "Synthesis of Amphiphilic Hyperbranched Copolymers by Cationic Ring-Opening Polymerization," paper presented at the Southeastern-Southwestern Regional Meeting of the American Chemical Society in New Orleans, LA (2000).
24. T. M. Austin, A. T. Royappa and C. Prayaga, "Synthesis of Nonlinear Optical Material n-Decyl Ferrocenoate (n-Decyl Ferrocenecarboxylate), paper presented at Symposium on Undergraduate Research in Mathematical Sciences in Mobile, AL (2000).
25. A. T. Royappa and T. M. Austin, "Polyaniline Blends and Derivatized Polyanilines," poster presented at the Southeastern Regional Meeting of the American Chemical Society in Durham, NC (1998).
26. B. S. Harrison, A. T. Royappa and W. K. Fisher, "Thermal Analysis of Polyanilines and a Polyaniline-Polypropylene Blend," poster presented at the Southeast Regional Meeting of the American Chemical Society in Roanoke, VA (1997).

Published Conference Proceedings

1. A. T. Royappa, S. T. Lopina and L. G. Cima, "Synthesis and Characterization of Tetraethylene Glycol-Poly(Ethylene Oxide) Hydrogels For Tissue Engineering Applications," *Biomaterials for Drug and Cell Delivery*, Materials Research Society Symposium Proceedings **331**, p. 245-250 (1994).
2. A. T. Royappa and M. F. Rubner, "Langmuir-Blodgett Films of Novel Polyion Complexes of Conducting Polymers," *Macromolecular Assemblies in Polymeric Systems*, ACS Symposium Series **493**, p. 76 (1992). [BOOK CHAPTER]
3. A. T. Royappa, M. F. Rubner, R. E. Cohen and R. S. Saunders, "Novel Langmuir-Blodgett Films of Electrically Conducting Polyion Complexes and Ionic Diblock Copolymers," *Electrical, Optical and Magnetic Properties of Organic Solid State Materials*, Materials Research Society Symposium Proceedings **247**, p. 853 (1992).
4. J. H. Cheung, E. Punkka, M. Rikukawa, R. B. Rosner, A. T. Royappa and M. F. Rubner, "New Strategies for the Langmuir-Blodgett Manipulation of Conducting Polymers," *ACS Polymeric Materials Science & Engineering* **64**, p. 263 (1991).

Other Publications

1. A. T. Royappa, sequence no. A210032, On-Line Encyclopedia of Integer Sequences (2012). An integer sequence from the number of D term symbols of increasing multiplicity, in atomic spectroscopy. <http://oeis.org>
2. A. T. Royappa, sequence no. A188385, On-Line Encyclopedia of Integer Sequences (2011). An integer sequence from the highest powers in the prime factorization of n^n . <http://oeis.org>
3. A. T. Royappa, sequence no. A163584, On-Line Encyclopedia of Integer Sequences (2009). An integer sequence from the number of singularities of $\tan(x)$ in integer intervals. <http://oeis.org>
4. A. T. Royappa, sequence no. A163581, On-Line Encyclopedia of Integer Sequences (2009). An integer sequence from the number of zeros of $\sin(x)$ in integer intervals. <http://oeis.org>

5. A. T. Royappa, sequence no. A154392, On-Line Encyclopedia of Integer Sequences (2009). An integer sequence from the number of zeros of $\sin(x^2)$ in integer intervals. <http://oeis.org>
6. A. T. Royappa, sequence no. A125089, On-Line Encyclopedia of Integer Sequences (2008). An integer sequence from the solutions of $\log_n(z) = -z$. <http://oeis.org>
7. A. T. Royappa, book review of "The \$800 Million Pill: The Truth Behind the Cost of New Drugs," by Merrill Goozner, *American Scientist* **93**, p. 384 (2004).
8. A. T. Royappa, book review of "The Ingredients: A Guided Tour of the Elements," by Philip Ball, *American Scientist* **91**, p. 272 (2003).
9. A. T. Royappa, sequence no. A081623, On-Line Encyclopedia of Integer Sequences (2003). An integer sequence derived from the different ways of distributing equal numbers of up and down spins on a square $n \times n$ lattice. <http://oeis.org>
10. A. T. Royappa, book review of "Green Plastics: An Introduction to the New Science of Biodegradable Plastics" by E. S. Stevens, *American Scientist* **90**, p. 273 (2002).
11. A. T. Royappa, book review of "A Chemical History Tour: Picturing Chemistry from Alchemy to Modern Molecular Science" by A. Greenberg, *American Scientist* **89**, p. 278 (2001).
12. A. T. Royappa, book review of "Polymer Handbook" E. H. Immergut and E. A. Grulke, eds., *American Scientist* **87**, p. 472 (1999).
13. A. T. Royappa, invited lead book review of "Inventing Polymer Science: Staudinger, Carothers, and the Emergence of Macromolecular Chemistry" by Y. Furukawa, *American Scientist* **87**, p. 78 (1999).
14. A. T. Royappa, sequence no. A014465, On-Line Encyclopedia of Integer Sequences (1997). An integer sequence derived from the degeneracies of successive quantum mechanical energy levels of a particle in a three-dimensional box. <http://oeis.org>
15. A. T. Royappa, book review of "American Plastic: A Cultural History" by J. Meikle, *American Scientist* **84**, p. 505 (1996).
16. A. T. Royappa and M. F. Rubner, "Novel Conducting Langmuir-Blodgett Films of Polythiophene Salts," *Polymer Preprints* **32**, p. 196 (1991).