

Shauntrece N. Hardrict

Fiber and Polymer Science Program
North Carolina State University
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Education:

Ph.D. Polymer/Organic Chemistry

2009 Virginia Polytechnic Institute and State University; Blacksburg, VA
Advisor: Richard D. Gandour

Dissertation Title: Dendronized Amphiphilic Copolymers Synthesized from Novel Methacrylate Macromonomers as Potential Topical Microbicides

M.S. Polymer/Organic Chemistry

2003 Virginia Polytechnic Institute and State University; Blacksburg, VA
Advisor: Judy S. Riffle

Thesis Title: Novel Novolac-Phthalonitrile and Siloxane-Phthalonitrile Resins Cured with Low Melting Novolac Oligomers for Flame Retardant Structural Thermosets

B.S. Chemistry

1999 Howard University; Washington, DC

Research Experience:

September 2010- **Southern Methodist University, Department of Chemistry; Dallas, TX – Visiting Scholar;** Principal Investigator: B. Sumerlin

September 2010- **North Carolina State University, Fiber and Polymer Science Program; Raleigh, NC – Postdoctoral Fellowship;** Principal Investigator: A. Tonelli

May 2010- **Virginia Tech, Department of Chemistry; Blacksburg, VA – Laboratory**
August 2010 **Manager**

June 2005- **Virginia Tech, Department of Chemistry; Blacksburg, VA – Research**
May 2009 **Assistant;** Principal Investigator: R.D. Gandour

- Synthesis and Characterization of Dendronized Amphiphilic Copolymers: Potential Anti-HIV and Antimicrobial Topical Microbicides
 - Synthesis of novel methacrylate macromonomers
 - Free radical polymerization

		<ul style="list-style-type: none"> ▪ Characterization: NMR, SEC, DSC, and TGA
		<ul style="list-style-type: none"> • Structure-Property Study of Biological Efficacy and Cytotoxicity for Multiple Homologous Series of Dendritic Amphiphiles <ul style="list-style-type: none"> ▪ Broth microdilution assays ▪ Disk diffusion assays ▪ Hemolytic assays
August April	2000- 2005	Virginia Tech, Department of Chemistry; Blacksburg, VA – Research Assistant; Principal Investigator: J.S. Riffle <ul style="list-style-type: none"> • Synthesis and Characterization of Telechelic Poly(arylene ether pyrimidine) Oligomers of Controlled Molecular Weight <ul style="list-style-type: none"> ▪ Step-Growth polymerization ▪ Characterization: NMR, SEC, DSC, TGA • Dicyanate Ester Resins: Candidates for Flame Retardant, Melt Processable Composite Matrices <ul style="list-style-type: none"> ▪ Step-Growth polymerization ▪ Characterization: NMR, SEC, DSC, TGA, and FTIR ▪ Monitored Curing process via FTIR and DSC
December April	1999- 2000	STERIS Corporation, Quality Control Laboratory; St. Louis, MO – Technician <ul style="list-style-type: none"> • Performed quality analysis (SOPs, GLPs, GMPs) of raw materials and finished lotion/soap products • Frequently used Instrumentation included: Viscometer, FTIR, and HPLC
September May	1998- 1999	Environmental Protection Agency - Office of Pollution Prevention and Toxics, EETD, Industrial Chemistry Branch, Washington, DC – Intern <ul style="list-style-type: none"> • Research and technical writing/editing for the Green Chemistry Awards Program
Summer	1998	General Electric - Plastics; Technology Department; Selkirk, NY – Intern <ul style="list-style-type: none"> • Rheological evaluation of raw materials and polymer blends using Kayeness Capillary Rheometer and Gottfert Melt Index Transfer (SOPs, GLPs, GMPs) • Formulation of a transfer function to evaluate rheological properties as a function of blend composition. • Compilation of a Technical Reports Library
Summer	1996	National Science Foundation Perspectives in Chemistry – Research Trainee Department of Chemistry, Howard University <ul style="list-style-type: none"> • Survey of Analytical Chemistry techniques • Instrumentation Training: Atomic Absorption Spectroscopy, Scanning Spectrophotometer, and Gas Chromatography

Teaching Experience:

American Chemical Society Short Course

- Coordinator: Scheduled and organized experiments and supervised instructors
- Instructor: Prepared lectures and executed experimental demonstrations

Head Teaching Assistant, Department of Chemistry

- Assisted Organic laboratory director with various administrative duties including: Preparation of lecture materials, assignments, quizzes, and exams
- Supervised Organic Chemistry laboratory teaching assistants
- Managed student concerns and mediated student/instructor interactions

Teaching Assistant, Department of Chemistry

- Taught General and Organic Chemistry laboratory courses to undergraduate students
- Proctored and graded exams for lecture courses
- Analytical Chemistry grader: graded homework assignments and exams

Research Mentor, Department of Chemistry

- Managed the research projects and daily activity of undergraduate researchers
- Assisted in the preparation of research posters and oral presentations

Presentations at Scientific Meetings:

Hardrict, S. N.; Gandour, R. D.; Turner, S. R. Dendronized Amphiphilic Copolymers Synthesized from Methacrylate Derivatives as Potential Topical Microbicides. 2009 Macromolecules and Interfaces Institute Conference and Review, Blacksburg, VA, April 13-15, 2009

Hardrict, S. N.; Gandour, R. D.; Falkinham, J. O., III; Broedel, S. E., Jr.; Cihlar, R. L.; Cole, M. F. Dendritic Amphiphiles as Antimicrobial Agents. 2007 Mid-Atlantic BIO Conference, Bethesda, MD, October 24–26, 2007

Hardrict, S. N.; Gandour, R. D.; Turner, S. R. Dendronized Amphiphilic Copolymers Synthesized from Methacrylate Derivatives as Potential Topical Microbicides. 2007 Macromolecules and Interfaces Institute Conference and Review, Blacksburg, VA, October 21-24, 2007

Publications:

Maisuria, B. B.; Actis, M. L.; Hardrict, S. N.; Falkinham, J. O., III; Cole, M. F.; Cihlar, R. L.; Peters, S. M.; Macri, R. V.; Sugandhi, E. W.; Williams, A. A.; Esker, A. R.; Gandour, R. D. Comparing Micellar, Hemolytic, and Antibacterial Properties of Di- and Tricarboxyl Dendritic Amphiphiles. *Bioorg. Med. Chem.* (submitted)

Hardrict, S.N.; Turner, S.R.; Gies, A.P.; Slebodnick, C.; Gandour, R.D. Synthesis and Characterization of Amphiphilic Dendronized Polymers Prepared from Novel Methacrylate Macromonomers. (In progress)

Hardrict, S.N.; Turner, S.R.; Gandour, R.D. Review: Polyanions as anti-HIV Agents (In progress)

Fellowships and Affiliations:

- NSF-IGERT Fellowship
- Macromolecules and Interfaces Institute (MII) Fellowship
- American Chemical Society (ACS), Polymer Division
- American Women in Science (AWIS) – NRV Charter Member
- Society of Cosmetic Chemists (SCC) – Student Member
- Summer Transition Engineering Program (STEP) – Chemistry Lab Instructor
- Upward Bound/Talent Search – Chemistry Instructor
- Virginia Tech Graduate Honor Court – Department of Chemistry Representative
- The Center of Dance; Blacksburg, VA – Dance Instructor
- FUSiON Dance Company, Virginia Tech – Founder/Artistic Director
- ArtsXtreme Summer Performing Arts Camp; Radford, VA – Dance Instructor
- Step Afrika! Cultural Festival; Johannesburg, South Africa – Dance Instructor
- Virginia Governor’s School Performing Arts Intensive; Radford, VA – Dance Instructor
- Alpha Kappa Alpha Sorority, Incorporated