

RYAN M. BOULDIN

29 Windsor Rd | Somerville, MA 02144 | 646-373-2160 | ryan.bouldin@gmail.com

ACADEMIC HISTORY

University of Massachusetts-Lowell, Lowell, MA

PhD Candidate (Expected Graduation - Fall 2010), Department of Chemical Engineering, 2007-Present

Research Advisor: Ramaswamy Nagarajan PhD, Department of Plastics Engineering

- Conducted fundamental research of the enzymatic polymerization of conjugated polymers (particularly polypyrroles)
- Explored use of enzymatically made polypyrroles for biosensor, capacitor, and battery applications
- Synthesized and characterized surface active polymers derived from chitosan for nonylphenol replacement
- Utilized carbon nanotube/polymer composite sensors for detection of organic vapors and chemical warfare agent stimulants

Tufts University, Medford, MA

Master of Engineering, 2007 – Department of Chemical Engineering, 2005-2007

Research Project

- Studied effects of polymer concentration at the time of cross-linking on the sorption properties in poly(vinyl alcohol)-glutaraldehyde hydrogels

Columbia University, New York, NY

Bachelor of Science, 2003 – Fu Foundation School of Engineering and Applied Science, Department of Chemical Engineering

University of the South, Sewanee, TN

Bachelor of Science, 2003 – Department of Chemistry

TEACHING EXPERIENCE

University of Massachusetts-Lowell, Lowell, MA, 2007-Current

Department of Plastics Engineering

- Teaching Assistant/Lecturer – Plastics, Elastics, and Additives from Renewable Resources, Spring 2009
- Duties include developing course curriculum, lecturing, grading coursework

Department of Chemical Engineering

- Teaching Assistant – Engineering Economics, Fall 2007 & 2008
- Duties include grading coursework and administering test

Tufts University, Medford, MA, Fall 2006

- Teaching Assistant – Chemical and Biological Separations
- Duties include grading coursework and administering test

INDUSTRIAL EXPERIENCE

Chemical Engineer, Camp, Dresser, and McKee Inc, (CDM), Cambridge, MA, 2003-2005

- Conducted optimization and design of small-scale petroleum remediation systems
- Conducted operation and maintenance duties for soil-vapor extraction, air sparge, dual-phase extraction, and groundwater pump and treat remediation systems
- Composed monthly reports and status updates for Department of Environmental Protection submittals

AWARDS & HONORS

- 2011 EPA P3 (People, Prosperity, and Planet) Phase 1 Award Winner – Team Member, University of Massachusetts-Lowell
- 2010 Sukant Tripathy Memorial Fellowship Award Winner- given to an outstanding UMass Lowell graduate student whose research topic is in the various fields of materials science and/or material
- 2009 & 2010 NSF Scholar Award Winner – Travel scholarship awarded for ACS Green Chemistry and Engineering Conference
- Member of the Order of Gownsmen (Academic Society), University of the South, Sewanee, TN, 2000-2001

PEER REVIEWED PUBLICATIONS

- Bouldin, R., Ravichandran, S., Kokil, A., Garhwal, R., Nagarajan, S., Kumar, J., Bruno, F.F., Samuelson, L.A., Nagarajan, R., **Enzymatic synthesis of linear polypyrrole – the unusual role of dopant in facilitating the reaction (Submitted for Publication)**
- Bouldin, R., Kokil, A., Ravichandran, S., Nagarajan, S., Kumar, J., Bruno, F.F., Samuelson, L.A., Nagarajan, R., **Enzymatic Synthesis of Electrically Conducting Polymers: A Review**, *ACS Symposium Series – Green Polymer Chemistry: Biocatalysis and Biopolymers* **2010**, In Press, 33 pgs
- Ravichandran, S., Bouldin, R., Kumar, J., Nagarajan, R., **A Renewable Waste Material for the Synthesis of a Novel Non-Halogenated Flame Retardant Polymer**, Submitted for Review
- Tewari, A.i, Kokil, A., Ravichandran, S., Nagarajan, S., Bouldin, R., Bruno, F., Samuelson, L.A., Nagarajan, R., Kumar, J., **Soybean Peroxidase Catalyzed Enzymatic Synthesis of Pyrrole-EDOT Copolymers**, *Macromol. Chem. Phys.* **2010**, *211*, 000–000
- Zhang, X., Surwade, S.P., Dua, V., Bouldin, R., Manohar, N., Manohar, S.K., **Parent Polythiophene Nanofibers**, *Chemistry Letters* **2008**, *37*, 5, 526-527

PATENTS

- Nagarajan, R., Bouldin, R., Ravichandran, S., Kokil, A., Nagarajan, S., Kumar, J., Bruno, F.F., Samuelson, L.A., **Soybean peroxidase as a catalyst for enzymatic synthesis of conducting polymers**, Patent Application Filed 06/30/2010

CONFERENCE PROCEEDING

- Bouldin, R., Kokil, A., Kumar, J., Bruno, F., Samuelson, L.A., Nagarajan, R., **Biocatalytic Synthesis of Fluorescent Polypyrrole Derivative**, *Poster Presentation*, 14th Green Chemistry & Engineering Conference, Summer **2010**, Washington DC
- Bouldin, R., Shingi, S., Nagarajan, R., **Naturally derived surface active polymers based on Chitosan**, *Poster Presentation*, Fall **2010** ACS National Meeting, Boston, MA.
- Bouldin, R., Ravichandran, S., Garhwal R., Nagarajan, S., Kumar, J., Bruno, F., Samuelson, L.A., Nagarajan, R., **Enzymatic Synthesis of Water-Soluble Polypyrrole**, *Polymer Preprints* **2009**, 50(2) - Oral Presentation, Fall 2009 ACS National Meeting, Washington DC
- Ravichandran, S., Bouldin, R.M., Kumar, J., Nagarajan, R., **Oxidative Polymerization of Naturally Occurring Cashew Nut Oil Derivatives for Flame Retardant Applications**, *PMSE Preprints* **2009**, 101, 1634-1635