

# PARTHA DATTA

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## Objective

Dedicated and self-motivated individual seeking a scientist position to apply necessary skills for attaining company's goals.

## Education

### **PhD Candidate, Chemistry**

*Expected May 2018*

Advisor: Dr. Matthew Kiesewetter

Dissertation Title: An Organocatalytic Approach to Polymers

University of Rhode Island

### **Bachelor of Science, Chemistry (ACS Certified)**

*May 2012*

St. John's University

## Research Experience

### **Department of Chemistry, University of Rhode Island, Kingston, RI**

#### *Graduate Research Assistant*

*Jan. 2014 – Present*

- *Discovered* a new, highly active, well-behaved co-catalyst pair in the ring-opening polymerization of some common cyclic esters and carbonates which is submitted for patent
- Designed and synthesized a set of biodegradable sulfur-containing monomers of the lactone/ester class for polymerization with characterization using NMR, GPC, DSC, TGA, MALDI-TOF MS, and rheometer
- Created a new set of copolymers with (thiono-*co*-thio)ester motif using organic catalysts for the first time that has been submitted for patent
- Synthesized reagents and catalysts from commercial materials with proficient experience in purification by Kugelrohr distillation and column chromatography
- Trained new lab members in using basic laboratory equipment, like setting up reactions in glove box, acquiring  $^1\text{H}$ ,  $^{13}\text{C}$  spectra in NMR, obtaining weight and polydispersity data in GPC and following general safety protocols
- Managed departmental instrument facility at URI Teknor Apex Lab for NMR, GCMS, DSC, TGA, LCMS with troubleshooting and repairing errors when needed

### **Chemistry Department, St. John's University, Queens, NY**

#### *Research Associate*

*Jan. 2011 – May 2012*

- Studied liquid-surface interaction of various modified hydrophobic surfaces through contact angle measurements

#### *Student Worker, Biology Dept.*

*Sep. 2008 – May 2009*

- Prepared buffers and other necessary reagents for about 20 students in the classroom laboratory sessions

## Publications and Patents

- Datta, P. P.; Pothupitiya, J. U.; Kiesewetter, E. T.; Kiesewetter, M. K. Coupled Equilibria in H-Bond Donating Ring-Opening Polymerization: The Effective Catalyst-Determined Shift of a Polymerization Equilibrium. *Eur. Polym. J.* **2017**, *95*, 671-677.
- Fastnacht, K. V.; Spink, S. S.; Dharmaratne, N. U.; Pothupitiya, J. U.; Datta, P. P.; Kiesewetter, E. T.; Kiesewetter, M. K. Bis- and Tris-Urea H-Bond Donors for Ring-Opening Polymerization: Unprecedented Activity and Control from an Organocatalyst Disclosure, URI 2017.
- Fastnacht, K. V.; Spink, S. S.; Dharmaratne, N. U.; Pothupitiya, J. U.; Datta, P. P.; Kiesewetter, E. T.; Kiesewetter, M. K. Bis- and Tris-Urea H-Bond Donors for Ring-Opening Polymerization: Unprecedented Activity and Control from an Organocatalyst. *ACS Macro Lett.* **2016**, *5*, 982-986.
- Datta, P. P.; Kiesewetter, E. T.; Kiesewetter, M. K. Controlled Ring-Opening Polymerization for the Synthesis of Homopoly (thionocaprolactone) and Copolymers Provisional US Patent 62314776, March 2016.
- Datta, P. P.; Kiesewetter, M. K. Controlled Organocatalytic Ring-Opening Polymerization of  $\epsilon$ -Thionocaprolactone. *Macromolecules.* **2016**, *49*, 774-780.
- Kazakov, O. I.; Datta, P. P.; Isajani, M.; Kiesewetter, E. T.; Kiesewetter, M. K. Cooperative Hydrogen-Bond Pairing in Organocatalytic Ring-Opening Polymerization. *Macromolecules.* **2014**, *47*, 7463-7468.

### **Skills and Certification**

- Bruker 300 and 400 MHz NMR
- Agilent Infinity GPC (SEC) system
- Shimadzu GCMS-QP 2020
- Shimadzu DSC-60 Plus
- Shimadzu TGA-50
- Differential Scanning Calorimetry DSC Q100
- Design of Experiment (DoE) Certification, 2017

### **Teaching Experience**

#### **University of Rhode Island, Kingston, RI**

##### ***Teaching Assistant***

##### **Organic Chemistry Lab**

*Sep. 2014 – May 2017*

- Taught organic laboratory techniques to undergraduate students, e.g. reflux, recrystallization, extraction, distillation, column chromatography, thin-layer chromatography, NMR, IR, multi-step synthesis.
- Managed 12 to 16 students per semester in class accompanied by grading weekly lab reports, written and practical final examinations

##### **General Chemistry Lab I and II**

*Sep. 2013 – May 2014*

- Taught basic laboratory techniques to undergraduate students, e.g. analytical balance, acidity optimization with pH meter, centrifuge, titration, bomb calorimetry.
- Managed 45 students per semester in class accompanied by grading weekly lab reports, written and practical final examinations

### **Selected Presentations (total 13)**

- August 2017     Datta, P. P.; Pothupitiya, J. U.; Kiesewetter, M. K. “Effective Manipulation of Reaction Thermodynamics using H-Bonding Catalysts” 254<sup>th</sup> ACS National Meeting & Exposition, Washington DC (poster)
- August 2016     Datta, P. P.; Kiesewetter, M. K. “Organocatalyzed Ring-Opening Polymerization of  $\epsilon$ -Thionocaprolactone” 252<sup>nd</sup> ACS National Meeting & Exposition, Philadelphia, PA (poster)
- June 2016        Datta, P. P.; Kiesewetter, M. K. “Organocatalyzed Ring-Opening Polymerization of  $\epsilon$ -Thionocaprolactone” 44<sup>th</sup> ACS Middle Atlantic Regional Meeting 2016, Riverdale, NY (powerpoint)
- August 2015     Datta, P. P.; Kiesewetter, M. K. “Ring-Opening Polymerization of  $\epsilon$ -Thionocaprolactone” 250<sup>th</sup> ACS National Meeting & Exposition, Boston, MA (poster)
- May 2012        Datta, P. P.; Pinzon, O.; Soo, B.; Serafin, J. M. “Modification of Interfacial Properties of Hydrophobic Surfaces with Aqueous Urea and Glycerol Measured through Contact Angles” 60<sup>th</sup> ACS Annual Undergraduate Research Symposium – New York Chapter, NY (powerpoint)

### **Community Service Activities**

- Judged at the Annual Rhode Island Science and Engineering Fair 2016 and 2017 for middle and high school students
- Co-Hosted departmental Student Hosted Seminar for guest speaker, Dr. Gary Brudvig, Chairman, Yale University Chemistry Department in September 2015
- Participated in assisting at the commencement ceremony of University of Rhode Island graduates of 2015-17
- Assisted with science demonstrations for middle school female students in Chemistry Camp as part of STEM developments in 2014-16
- Assisted in proctoring and grading in University of Rhode Island Chemistry Department Annual High School Chemistry Contest in 2014