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# ROBERT C. FERRIER, Jr., Ph.D.

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## RESEARCH PHILOSOPHY

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The marriage of polymer chemistry and polymer physics for the development of novel materials.

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## EDUCATION

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**Ph.D. in Chemical and Biomolecular Engineering**, *University of Pennsylvania* 2015  
Thesis: Surface Chemistry Mediated Assembly of Polymer-Grafted Nanorods in Solution and Polymer Matrices

**M.S. in Materials Science and Engineering**, *Drexel University* 2009  
Thesis: Polymer Templated Janus Magnetic Nanoparticles

**B.S. in Physics**, *Drexel University* 2009

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## RESEARCH EXPERIENCE

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Post-Doctoral Researcher in Chemical Engineering 2016-Present  
*University of Texas – Austin*  
Advisor: **Nathaniel A. Lynd** Focus: **Polymer Chemistry**

Graduate Researcher (Ph.D.) in Chemical and Biomolecular Engineering 2009-2015  
*University of Pennsylvania*  
Advisor: **Russell J. Composto** Focus: **Polymer Physics**

Research Fellow at the Institute of Nanosciences and Cryogenics (INAC) Summer-Fall 2013  
*National Centre for Scientific Research (CNRS) (Grenoble, France)*  
Advisors: **Didier Gasparutto**, **Brigitte Pépin-Donat**, **Patrice Rannou** Focus: **Hybrid/DNA Materials**

Research Fellow at the Institute for Chemical Research Summer 2012  
*Kyoto University (Kyoto, Japan)*  
Advisor: **Kohji Ohno** Focus: **Polymer Synthesis**

Graduate Researcher (M.S.) in Materials Science and Engineering 2007-2009  
*Drexel University*  
Advisor: **Christopher Y. Li** Focus: **Janus Nanoparticles**

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## AWARDS AND FELLOWSHIPS

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UPenn Polymer Symposium Poster Session: Winner, *University of Pennsylvania* 2015

Labex-ARCANE Fellowship 2013

Nano-Bio Interface Center International Research Fellowship, *University of Pennsylvania* 2013

National Science Foundation East-Asia and Pacific Summer Institutes Fellowship 2012

Ashton Fellowship, *University of Pennsylvania* 2009-2015

University Wide Poster Competition: Winner (Physical Sci. and Eng.), *Drexel University* 2009

A.J. Drexel Scholarship, *Drexel University* 2004 - 2009

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## PEER REVIEWED PUBLICATIONS

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\* Denotes Equal Authorship

10. Christina G. Rodriguez\*, **Robert C. Ferrier, Jr.\***, Alysha Helenic, Nathaniel A. Lynd, Ring Opening Polymerization of Epoxides: Facile Pathway to Functional Polyethers via a Versatile Organoaluminum Initiator, *Macromolecules*, **2017**, *50* (8), pp 3121-3130
9. Ethan Glor\*, **Robert C. Ferrier, Jr.\***, Chen Li, Russell J. Composto, Zahra Fakhraai, Characterizing the Out-of-Plane Orientation Order and Rotation Dynamics of Gold Nanorods in Polymer Nanocomposites, *Soft Matter*, **2017**, *13*, pp 2207-2215
8. **Robert C. Ferrier, Jr.\***, Jason Koski\*, Robert A. Riggelman, Russell J. Composto, Engineering the Assembly of Gold Nanorods in Polymer Matrices, *Macromolecules*, **2016**, *49* (3), pp 1002-1015
7. Elaine Lee\*, Yu Xia\*, **Robert C. Ferrier, Jr.\***, Hye-Na Kim, Mohamed A. Gharbi, Kathleen J. Stebe, Randall D. Kamien, Russell J. Composto, Shu Yang. Fine Golden Rings: A Tunable Surface Plasmon Resonance from Liquid Crystal Assembled Nanorods. *Advanced Materials*, **2016**, *28*, pp 2731-2736
6. **Robert C. Ferrier, Jr.**, Yun Huang, Kohji Ohno, Russell J. Composto. Dispersion of Polymer Grafted, Mesoscopic, Iron-oxide Rods in Polymer Matrices. *Soft Matter*, **2016**, *12*, pp 2550-2556
5. **Robert C. Ferrier, Jr.**, Guillaume Gines, Didier Gasparutto, Brigitte Pépin-Donat, Patrice Rannou, Russell J. Composto. Tuning Optical Properties of Functionalized Gold Nanorods through Controlled Interactions with Organic Semiconductors. *Journal of Physical Chemistry C*, **2015**, *119* (31), pp 17899-17909
4. **Robert C. Ferrier, Jr.**, Hyun-Su Lee, Michael J. A. Hore, Matthew Caporizzo, David M. Eckmann, Russell J. Composto. Gold Nanorod Linking to Control Plasmonic Properties in Solution and Polymer Nanocomposites. *Langmuir*, **2014**, *30* (7), pp 1906-1914
3. M. Carme Coll-Ferrer, **Robert C. Ferrier, Jr.**, David M. Eckmann, Russell J. Composto. A Facile Route to Synthesize Nanogels Doped with Silver Nanoparticles. *Journal of Nanoparticle Research*, **2013**, *15*, pp 1323-1325
2. Bingbing Wang, Bing Li, **Robert C. M. Ferrier, Jr.**, Christopher Y. Li. Polymer Single Crystal Templated Janus Nanoparticles. *Macromolecular Rapid Communications*, **2010**, *31*, pp 169-175
1. Bing Li, Bingbing Wang, **Robert C. M. Ferrier, Jr.**, Christopher Y. Li. Programmable Nanoparticle Assembly via Polymer Single Crystals. *Macromolecules*, **2009**, *42*, pp 9394-9399

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## PRESENTATIONS

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9. **Robert C. Ferrier, Jr.**, Christina G. Rodriguez, Nathaniel A. Lynd, A New Synthetic Approach to Epoxide Polymerization. Oral presentation to delivered at *American Institute of Chemical Engineers*, San Francisco, CA, November, 2016.
8. **Robert C. Ferrier, Jr.**, Jason Koski, Robert A. Riggelman, Russell J. Composto, Engineering the Assembly of Gold Nanorods in Polymer Matrices. Oral presentation delivered at *American Physical Society* meeting, Baltimore, MD, March, 2016.
7. **Robert C. Ferrier, Jr.**, Surface Chemistry Mediated Assembly of Polymer-Grafted Nanorods in Solution and Polymer Matrices. Invited talk delivered at *Prof. Nathaniel A. Lynd's* group meeting, University of Texas - Austin, November, 2015.
6. **Robert C. Ferrier, Jr.**, Jason Koski, Robert A. Riggelman, Russell J. Composto. Controlled Aggregation of Gold Nanorods Grafted with Chemically Dissimilar Polymer Brushes in Polymer Thin Films. Poster delivered at *Polymer Symposium*, Philadelphia, PA, June, 2015.
5. **Robert C. Ferrier, Jr.**, Matthew Eibling, Christopher MacDermaid, Christopher Lanci, Jeffery G. Saven, Russell J. Composto. Switchable End-Linking of Gold Nanorods Induced by a Computationally Designed,

Metal-Binding Peptide. Oral presentation delivered at *American Physical Society* meeting, San Antonio, TX, March, 2015.

4. **Robert C. Ferrier, Jr.**, Matthew J. Eibling, Guillaume Gines, Patrice Rannou, Didier Gasparutto, Jeffery G. Saven, Russell J. Composto. Gold Nanorod End-linking with Bio-molecules to Control Plasmonic Properties. Poster delivered at *American Chemical Society-Colloids* meeting Philadelphia, PA, June, 2014.
3. **Robert C. Ferrier, Jr.**, Guillaume Gines, Christine Saint-Pierre, Russell J. Composto, Didier Gasparutto, Brigitte Pépin-Donat, Patrice Rannou. Janus Gold Nanorod and DNA-based Functional Supramolecular Architectures for Organic (Opto)electronics. Poster delivered at *French American Workshop* meeting Grenoble, France, June 2013.
2. **Robert C. Ferrier, Jr.**, Hyun-Su Lee, Michael J. A. Hore, Matthew Caporizzo, David M. Eckmann, Russell J. Composto. Janus Gold Nanorod Linking to Control Plasmonic Properties in Solution and Polymer Matrices. Oral presentation delivered at *American Physical Society* meeting Baltimore, MD, March, 2013.
1. **Robert C. Ferrier, Jr.**, Yun Huang, Kohji Ohno, Russell J. Composto. Mesoscopic Iron-oxide Nanocomposite Thin Films. Poster delivered at *American Physical Society* meeting Boston, MA, March, 2012.

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### TEACHING AND MENTORING

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<b>Guest Lecturer</b> , MSE 330: Soft Matter, <i>University of Pennsylvania</i>	Fall 2011, 2012, 2015
<b>Teaching Assistant</b> , MSE 330: Soft Matter, <i>University of Pennsylvania</i>	Fall 2011, 2012
<b>Teaching Workshops</b> , <i>University of Pennsylvania</i>	2014-2015
<b>REU Mentor</b> , <i>University of Pennsylvania</i>	Summer 2014
<b>Senior Design Mentor</b> , <i>University of Pennsylvania</i>	Fall 2012-Spring 2013