

Jeffrey D. Rimer

University of Houston, Department of Chemical and Biomolecular Engineering
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EDUCATION

- 2001 – 2006 **Ph.D. Chemical Engineering**
University of Delaware, Department of Chemical Engineering **Newark, DE**
Thesis: “*Self-assembly of silica nanoparticles and their role in the mechanism of silicalite-1 crystallization*” with advisors Raul F. Lobo and Dionisios G. Vlachos
- 1999 – 2001 **B.S. Chemical Engineering, Summa Cum Laude**
Washington University in St. Louis **St. Louis, MO**
- 1996 – 1999 **B.S. Chemistry, Magna Cum Laude**, minor in history
Allegheny College **Meadville, PA**

RESEARCH EXPERIENCE

- 2015 – Present **University of Houston, Associate Professor** **Houston, TX**
- 2009 – 2015 **University of Houston, Assistant Professor**
- 2012 – Present **Ernest J. and Barbara M. Henley Chemical Engineering College Professorship**
Department of Chemical and Biomolecular Engineering
- **Rational Design of Porous Catalysts:** novel approaches are used to tailor zeolite properties (size, shape, composition). We pioneered *in situ* solvothermal AFM and use this technique to examine surface growth in real time and quantify interfacial interactions. We introduced the use of zeolite growth modifiers to control crystal habit and exploit this method for the rational design of catalysts with improved performance in methane and methanol upgrading to chemicals and fuels.
 - **Crystal Engineering of Biomaterials:** we develop novel therapeutics for pathological and infectious diseases using crystal growth inhibitors, such as *de novo* peptides, to arrest crystal growth. Research initiatives examine crystallization with near-molecular and macroscopic methods aimed to quantify inhibitor-crystal interactions and binding modes. In collaboration with medical and academic institutions, we explore growth inhibition as a viable approach to design drugs.
- 2007 – 2009 **New York University, Postdoctoral Fellow** **New York, NY**
Department of Chemistry, Molecular Design Institute
- Investigated the mechanism of calcium oxalate and L-cystine kidney stone formation with Prof. Michael Ward and collaborators at the Medical College of Wisconsin and NYU Medical Center.
 - Patented a viable therapeutic drug for L-cystine stone disease, which dramatically reduces *in vitro* crystal growth rates and yield, and selectively alters crystal habit.
 - Explored the dynamics of protein-protein and protein-crystal interactions at crystal surfaces using AFM force spectroscopy and AFM tips with covalently immobilized urinary proteins.
 - Probed the influence of growth inhibitors using real time *in situ* AFM studies of crystal growth.
- 2001 – 2006 **University of Delaware, Doctoral Research** **Newark, DE**
Department of Chemical Engineering, Center for Catalytic Science and Technology
- Analyzed the structural evolution of silica nanoparticles during zeolite silicalite-1 nucleation with small-angle X-ray scattering (SAXS) and small-angle neutron scattering (SANS).
 - Implemented thermodynamic models to elucidate the physical basis for the self-assembly and the colloidal stability of silica nanoparticles formed during the initial stages of silicalite-1 crystallization in collaboration with UC Davis (Prof. Alexandra Navrotsky) to perform microcalorimetry studies.
 - Investigated the mechanism of silicalite-1 crystallization using combined dynamic light scattering experiments and kinetic modeling of zeolite growth.

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- Summer 1999 **University of Pittsburgh, NSF REU Program** **Pittsburgh, PA**
Department of Chemistry
- Developed novel synthetic methods in *Fluorous Biphasic Catalysis* using radical-based tin hydride reactions under the advisement of Dennis P. Curran in the organic chemistry department.
- 1998 – 1999 **Allegheny College, Undergraduate Research** **Meadville, PA**
Department of Chemistry
- Designed reaction pathways towards the synthesis of the organic compound (\pm) Laurene.

INDUSTRIAL EXPERIENCE

- 2006 – 2007 **DuPont Corporation and University of Delaware** **Wilmington, DE**
- Investigated the rheology and kinetics of curing polymer nanocomposites with Norman Wagner (U. Delaware) and in collaboration with Ed Stancik and Bryan Sauer (DuPont Experimental Station).
- Summer 2000 **Bayer Corporation, Pre-Professional Program** **Pittsburgh, PA**
- Assisted the *Engineering Analysis* group within Bayer's corporate engineering department to monitor capital spending and cycle dates for all domestic projects.

HONORS AND AWARDS

- 2017 **Gordon Research Conference on Crystal Growth & Assembly, Chair-Elect**
- 2016 **Mellichamp Emerging Leader Lecture, University of California at Santa Barbara**
Owens Corning Early Career Award, American Institute of Chemical Engineers
Teaching Excellence Award, Cullen College of Engineering
Up and Coming Perspective Series, Chemistry of Materials (ACS Publishing)
- 2015 **Teaching Excellence Award, University of Houston**
Gordon Research Conference on Crystal Growth & Assembly, Invited Speaker
Gordon Research Conference on Nanoporous Materials & Their Applications, Invited Speaker
Southwest Catalysis Society, Chair-Elect
- 2014 **Award for Excellence in Research and Scholarship, University of Houston**
Early Faculty Award for Mentoring Undergraduate Research, University of Houston
The Catalyst Review, Selected for "Movers & Shakers"
Provost Certificate of Excellence, University of Houston
- 2013 **DOE Workshop on Particle Mediated Growth, Invited Participant, Berkeley, CA**
Junior Faculty Research Excellence Award, Cullen College of Engineering
- 2012 **ERDT Visiting Professor of Chemical Engineering, University of the Philippines**
National Science Foundation CAREER Award
Ernest J. and Barbara M. Henley Chemical Engineering College Professorship
ACS-PRF Doctoral New Investigator Award
Welch Foundation Award
- 2011 **Oak Ridge Associated Universities Travel Award**
American Institute of Chemical Engineering Honorarium, 2011 Annual Meeting Invited Speaker

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- 2010 **National Science Foundation BRIGE Award**
- 2009 **New Faculty Award**, University of Houston
- 2006 **Materials Computation Center (MCC) Travel Grant**, CECAM workshop in Lyon, France
Poster Award Contest Winner, Philadelphia Catalysis Club Meeting in Wilmington, DE
Gordon Research Conference Student Travel Award, Ventura, CA
- 2005 **Robert L. Pigford Teaching Assistant Award**, University of Delaware
Kokes Student Travel Award, 19th North American Catalysis Society Meeting in Philadelphia, PA
Gordon Research Conference Student Travel Award, South Hadley, MA
- 2002 **Honorable Mention, National Science Foundation Graduate Fellowship**, University of Delaware
- 2001 **Dual Degree Chemical Engineering Award**, Washington University in St. Louis
Harold P. Brown Fellowship (1999–2001), Washington University in St. Louis (full tuition plus stipend)
- 1999 **NSF Research Experience for Undergraduates Fellowship**, University of Pittsburgh
Elected to Phi Beta Kappa Society, Allegheny College
Sandra Doane Turk Award, Allegheny College
Most Outstanding Junior Chemist Award, Allegheny College
Presidential Honor Scholarship (1996 – 1999), Allegheny College
Distinguished Alden Scholar (1996–1999), Allegheny College
- 1998 **ACS Polymer Division Award for Outstanding Performance in Organic Chemistry**, Allegheny College
- 1997 **American Chemical Society (ACS) Most Outstanding Freshman Chemistry Student**, Allegheny College

PUBLICATIONS : REFEREED JOURNALS

39. Olafson, K.N., Nguyen, T., Rimer, J.D., Vekilov, P.G., *Antimalarials Inhibit Hematin Crystallization by Specific Drug-Surface Site Interactions*, (Submitted)
38. Oleksiak, M.D., Ghorbanpour, A., Conato, M.T., McGrail, B.P., Grabow, L.C., Motkuri, R.K., Rimer, J.D., *Novel Synthesis Strategies for Ultrastable Zeolite GIS Polymorphs as Sorbents for Selective Separations*, (Submitted)
37. Oleksiak, M.D., Soltis, J.A., Conato, M.T., Penn, R.L., Rimer, J.D., *Nucleation of FAU and LTA Zeolites from Heterogeneous Aluminosilicate Precursors*, (In Press)
36. Chung, J., Granja, I., Taylor, M.G., Mpourmpakis, G., Asplin, J.R., Rimer, J.D., *Molecular Modifiers Reveal a Mechanism of Pathological Crystal Growth Inhibition*, (In Press)
35. Ghorbanpour, A., Rimer, J.D., Grabow, L.C., *Computational Assessment of the Dominant Factors Governing the Mechanism of Methanol Dehydration over H-ZSM-5 with Heterogeneous Al Distribution*, **ACS Catal.** 6 (2016) 2287-2298
34. Rimer, J.D., Tsapatsis, M., *Nucleation of Open Framework Materials: Navigating the Voids*, **MRS Bulletin** 41 (2016) 393-398 (Invited submission to the issue on “Nucleation in Atomic, Molecular, and Colloidal Systems”)
33. Kumar, M., Li, R., Rimer, J.D., *Assembly and Evolution of Amorphous Precursors in Zeolite L Crystallization*, **Chem. Mater.** 28 (2016) 1714-1727
32. Kumar, M., Luo, H., Román-Leshkov, Y., Rimer, J.D., *SSZ-13 Crystallization by Particle Attachment and Deterministic Pathways to Crystal Size Control*, **J. Am. Chem. Soc.** 137 (2015) 13007-13017
31. Olafson, K.N., Ketchum, M.A., Rimer, J.D., Vekilov, P.G., *Molecular Mechanisms of Hematin Crystallization from Organic Solvent*, **Cryst. Growth Des.** 15 (2015) 5535-5542

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30. Vekilov, P.G., Rimer, J.D., Olafson, K.N., Ketchum, M.A., *Lipid or Aqueous Medium for Hematin Crystallization?*, **CrystEngComm** 17 (2015) 7790-7800
[*Artwork selected for cover](#)
29. De Yoreo, J.J., Gilbert, P.U.P.A., Sommerdijk, N.A.J.M., Penn, R.L., Whitelam, S., Joester, D., Zhang, H.Z., Rimer, J.D., Navrotsky, A., Banfield, J.F., Wallace, A.F., Michel, F.M., Meldrum, F.C., Cölfen, H. Dove, P.M., *Crystallization by Particle Attachment in Synthetic, Biogenic, and Geologic Environments*, **Science** 349 (2015) aaa6760-1/9
28. Olafson, K.N., Ketchum, M.A., Rimer, J.D., Vekilov, P.G., *Mechanisms of Hematin Crystallization and Inhibition by the Antimalarial Drug Chloroquine*, **Proc. Natl. Acad. Sci. USA** 112 (2015) 4946-4951
27. Farmanesh, S., Alamani, B.G., and Rimer, J.D., *Identifying Alkali Metal Inhibitors of Crystal Growth: A Selection Criterion based on Ion Pair Hydration Energy*, **Chem. Commun.** 51 (2015) 13964-13967
26. Ghorbanpour, A., Gumidyala, A., Grabow, L.C., Crossley, S.P., Rimer, J.D., *Epitaxial Growth of ZSM-5@Silicalite-1: A Core-Shell Zeolite Designed with Passivated Surface Acidity*, **ACS Nano** 9 (2015) 4006-4016
25. Conato, M.T., Oleksiak, M.D., McGrail, B.P., Motkuri, R.K., Rimer, J.D., *Framework Stabilization of Si-Rich LTA Zeolite Prepared in Organic-Free Media*, **Chem. Commun.** 51 (2015) 269-272
[*Artwork selected for inside cover](#)
24. Rimer, J.D., Li, R., Lupulescu, A.I., Kumar, M., Oleksiak M.D., *Tailoring the Physicochemical Properties of Zeolite Catalysts*, **Catal. Sci. Technol.** 4 (2014) 3762-3771
23. Farmanesh, S., Chung, J., Ricardo, R.D., Kwak, J.H., Karande, P., Rimer, J.D., *Natural Promoters of Calcium Oxalate Monohydrate Crystallization*, **J. Am. Chem. Soc.** 136 (2014) 12648-12657
22. Ghorbanpour, A., Rimer, J.D., Grabow, L.C., *Periodic, vdW-Corrected Density Functional Theory Investigation of the Effect of Al Siting in H-ZSM-5 on Chemisorption Properties and Site Specific Acidity*, **Catal. Commun.** 52 (2014) 98-102
21. Olafson, K.N., Rimer, J.D., Vekilov, P.G., *Growth of Large Hematin Crystals in Biomimetic Solutions*, **Cryst. Growth Des.** 14 (2014) 2123-2127
20. Lupulescu, A.I. and Rimer, J.D., *In Situ Imaging of Silicalite-1 Surface Growth Reveals the Mechanism of Crystallization*, **Science** 344 (2014) 729-732
[*Perspectives article; Dandekar P. and Doherty, M.F. Science 344 \(2014\) 705-706](#)
19. Farmanesh, S., Ramamoorthy, S., Chung, J., Asplin, J.R., Karande, P., Rimer, J.D., *Specificity of Growth Inhibitors and their Cooperative Effects in Calcium Oxalate Crystallization*, **J. Am. Chem. Soc.** 136 (2014) 367-376
18. Oleksiak, M.D. and Rimer, J.D., *Synthesis of Zeolites in the Absence of Organic Structure-Directing Agents: Factors Governing Crystal Selection and Polymorphism*, **Rev. Chem. Eng.** 30 (2014) 1-49
17. Ketchum, M.A., Olafson, K.N., Petrova, E.V., Rimer, J.D., Vekilov, P.G., *Hematin Crystallization from Aqueous and Organic Solvents*, **J. Chem. Phys.** 139 (2013) 121911 (1-9)
16. Farmanesh, S., Chung, J., Chandra, D., Sosa, R.D., Karande, P., Rimer, J.D., *High-Throughput Platform for Design and Screening of Peptides as Inhibitors of Calcium Oxalate Monohydrate Crystallization*, **J. Cryst. Growth** 373 (2013) 13-19.
15. Lupulescu, A.I., Kumar, M., Rimer, J.D., *A Facile Strategy to Design Zeolite L Crystals with Tunable Morphology and Surface Architecture*, **J. Am. Chem. Soc.** 135 (2013) 6608-6617.
14. Maldonado, M., Oleksiak, M.D., Chinta, S., Rimer, J.D., *Controlling Crystal Polymorphism in Organic-Free Synthesis of Na-Zeolites*, **J. Am. Chem. Soc.** 135 (2013) 2641-2652.
[*Artwork selected for front cover](#)
[*Selected for JACS Spotlights](#)

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13. Tanneru, C.T., Rimer, J.D., Chellam, S., *Sweep Flocculation and Adsorption of Viruses on Aluminum Floccs During Electrochemical Treatment Prior to Surface Water Microfiltration*, **Environ. Sci. Technol.** 47 (2013) 4612-4618.
12. Gamage, N.P., Rimer, J.D., Chellam, S., *Fouling Reductions by Aluminum Electroflotation Pretreatment of Surface Water Microfiltration*, **J. Membrane Sci.** 411-412 (2012) 45-53.
11. Lupulescu, A.I. and Rimer, J.D., *Tailoring Silicalite-1 Crystal Morphology with Molecular Modifiers*, **Angew. Chem. Int. Ed.** 51 (2012), 3345-3349
*Artwork selected for back cover
10. Viswanathan, P., Rimer, J.D., Beshensky, A.M., Ward, M.D., Wesson, J.A., Kleinman, J.G.. *Calcium Oxalate Monohydrate Aggregation is Induced by Desialylated Tamm-Horsfall Protein*, **Urol. Res.** 39 (2011) 269-282.
9. Rimer, J.D., An, Z., Zhu, Z., Lee, M.H., Wesson, J.A., Goldfarb, D.S., Ward, M.D.. *Crystal Growth Inhibitors for the Prevention of L-Cystine Kidney Stones through Molecular Design*, **Science** 330 (2010) 337-341.
*Artwork selected for front cover
*Perspectives article; Coe, F.L. and Asplin J.R., **Science** 330 (2010) 325-326
*Featured in **Chemical & Engineering News**, October 14, 2010
*Interview in **Nature**, 502 (2013) 291-293
8. Rimer, J.D., Trofymuk, O., Lobo, R.F., Navrotsky, A., Vlachos, D.G.. *Thermodynamics of Silica Nanoparticle Self-Assembly in Basic Solutions of Monovalent Cations*, **J. Phys. Chem. C**, 112 (2008) 14754-14761.
7. Rimer, J.D., Trofymuk, O., Navrotsky, A., Lobo, R.F., Vlachos, D.G.. *Kinetic and Thermodynamic Studies of Silica Nanoparticle Dissolution*, **Chem. Mater.** 19 (2007) 4189-4197.
6. Rimer, J.D., Roth, D.D., Lobo, R.F., Vlachos, D.G.. *Self-Assembly and Phase Behavior of Germanium Oxide Nanoparticles in Basic Aqueous Solutions*, **Langmuir**, 23 (2007) 2784-2791.
5. Rimer, J.D., Fedeyko, J.M., Vlachos, D.G., Lobo, R.F.. *Silica Self-Assembly and the Synthesis of Microporous and Mesoporous Silicates*, **Chem. Eur. J.** 12 (2006) 2926-2934.
4. Rimer, J.D., Vlachos, D.G., Lobo, R.F.. *Evolution of Self-Assembled Silica-Tetrapropylammonium Nanoparticles at Elevated Temperatures*, **J. Phys. Chem. B** 109 (2005) 12762-12771.
3. Rimer, J.D., Lobo, R.F., Vlachos, D.G.. *Physical Basis for the Formation and Stability of Silica Nanoparticles in Basic Solutions of Monovalent Cations*, **Langmuir** 21 (2005) 8960-8971.
2. Fedeyko, J.M., Rimer, J.D., Lobo, R.F., Vlachos, D.G.. *Spontaneous Formation of Silica Nanoparticles in Basic Solutions of Small Tetraalkylammonium Cations*, **J. Phys. Chem. B** 108 (2004) 12271-12275.
1. Kragten, D.D., Fedeyko, J.M., Sawant, K.R., Rimer, J.D., Vlachos, D.G., Lobo, R.F.. *Structure of the Silica Phase Extracted from Silica/(TPA)OH Solutions Containing Nanoparticles*, **J. Phys. Chem. B** 107 (2003) 10006-10016.

PUBLICATIONS : CONFERENCE PROCEEDINGS

2. Rimer, J.D., Vlachos, D.G., Lobo, R.F.. *Kinetics of Silicalite-1 Crystallization*, **Studies in Surface Science and Catalysis** Pts A-C, From Zeolites to Porous MOF Materials – the 40th Anniversary of International Zeolite Conference, 170 (2007) 133-144.
1. Rimer, J.D., Kragten, D.D., Tsapatsis, M., Lobo, R.F., Vlachos, D.G.. *Growth Mechanisms of High-Silica Zeolites*, Recent Advances in the Science and Technology of Zeolites and Related Materials, Pts. A-C **Studies in Surface Science and Catalysis** 154 (2004) 317-324.

PATENTS AND PROVISIONAL PATENTS

- 2015 Rimer, J.D., Conato, M.T., Oleksiak, M.D., “One-pot Synthesis of High-Silica Zeolite Y (FAU) in Organic-Free Media” University of Houston (Disclosure Filed, March 18, 2015)

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- 2014 Rimer, J.D., Conato, M.T., Oleksiak, M.D., “Framework Stabilization of Si-Rich LTA Zeolite Prepared in Organic-Free Media” University of Houston (Filed September 2014)
- 2014 Rimer, J.D., Asplin, J.R., “Organic acids as growth inhibitors of pathological calcification and uses thereof” University of Houston and Litholink Corporation (Filed January 2014)
- 2013 Rimer, J.D., Karande, P., “High-throughput platform for design and screening of peptides as inhibitors of calcium oxalate monohydrate crystallization and uses thereof” University of Houston and Rensselaer Polytechnic Institute (61/844,143; UHID: 2012-029)
- 2012 Rimer, J.D., “Methods of controlling polymorphism in organic-free synthesis of Na-zeolites and zeolite crystals formed therefrom” University of Houston (61/673,498 ; UHID 2012-014, UOFH/0007L)
- 2012 Rimer, J.D. “Zeolite compositions and methods for tailoring zeolite crystal habits with growth modifiers” PCT/US2012/023877, University of Houston
- 2009 Ward, M.D. and Rimer, J.D., “Compounds as L-cystine crystallization inhibitors and uses thereof,” WO/2011/0622640, New York University

SELECTED PRESENTATIONS AND POSTERS

- 2016 18th International Conference on Crystal Growth and Epitaxy** **Nagoya, Japan**
Vekilov, P.G., Olafson, K.N., Rimer, J.D., *Kinetic Roughening via Two-dimensional Spinodal Decomposition in Hematin Crystallization*
Vekilov, P.G., Olafson, K.N., Rimer, J.D., *Mechanisms of Inhabitation of Hematin Crystallization by Antimalarials*
- 2016 Department of Energy Catalysis Science PI Meeting** **Gaithersburg, MD**
Rimer, J.D., *Structure-Performance Relationships in Zeolite Catalysis: Impact of Crystal Size and Morphology in MTH* (Poster)
- 2016 International Symposium on Chemical Reaction Engineering** **Minneapolis, MN**
Hsieh, M-F., Grabow, L.C., and Rimer, J.D., *Designing Metal-Exchanged Zeolites for Non-Oxidative Methane Upgrade to Chemicals*, Reaction Engineering of Novel Functional Materials
- 2016 American Chemical Society Spring Meeting** **San Diego, CA**
Shen, Y. and Rimer, J.D., *Rational Design of ZSM-11 Catalyst with Tunable Physicochemical Properties*, CATL Division
- 2015 American Institute of Chemical Engineers Annual Conference** **Salt Lake City, UT**
Li, R., Rimer, J.D., *Reducing Internal Mass-Transport Limitations of One-Dimensional Nanoporous Zeolites from Different Perspectives*, (219b Oral Presentation)
Oleksiak, M.D., Rimer, J.D., *Tailoring the Physicochemical Properties of Zeolites through Organic-Free Synthesis Routes*, (327d Oral Presentation)
Kumar, M., Luo, H., Roman, Y., Rimer, J.D., *Identifying the Mechanism of SSZ-13 Crystallization and Methods to Tailor Material Properties*, (384d Oral Presentation)
Ketchum, M., Rimer, J.D., Vekilov, P.G., *High-Throughput Biomimetic Assay Designed to Quantify Antimalarial Efficacy*, (465a Oral Presentation)
Taylor, M.G., Chung, J., Carnaval, I., Rimer, J.D., Mpourmpakis, G., *Kidney Stone Growth Modification: Insights from First Principles Calculations*, (659d Oral Presentation)
Chung, J., Taylor, M.G., Carnaval, I., Mpourmpakis, G., Asplin, J.R., Rimer, J.D., *Inhibition of Calcium Oxalate Monohydrate Crystallization Using Organic Acids*, (659e Oral Presentation)

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Olafson, K.N., Vekilov, P.G., Rimer, J.D., *Mechanism of Hematin Crystallization and Inhibition in Biomimetic Solutions*, (659g Oral Presentation)

Kwak, J.H., Fan, F., Rimer, J.D., Karande, P., *Investigation of Peptide-Mediated Crystal Habits Using a High-Content Screening Platform*, (634i Oral Presentation)

Li, R., Rimer, J.D., *Reducing Internal Mass-Transport Limitations of One-Dimensional Nanoporous Zeolites*, (621dr, CRE Poster Session)

Ghorbanpour, A., Rimer, J.D., Grabow, L.C., *Investigation of the Methanol-to-DME Reaction Mechanism on H-ZSM-5 Using Van Der Waals Corrected Density Functional Theory*, (630c Oral Presentation)

Ghorbanpour, A., Gumidyala, A., Grabow, L.C., Crossley, S., Rimer, J.D., *Synthesis of ZSM-5 Nanoparticles Encapsulated within an Ultrathin Silicalite-1 Coating of Tunable Thickness*, (603b Oral Presentation)

Olafson, K.N., Rimer, J.D., Vekilov, P.G., *Molecular Interactions at a Solid-Liquid Interface Determine the Inhibition Mechanism of Hematin Crystallization By Antimalarial Drugs*, (610f Oral Presentation)

Oleksiak, M.D., Rimer, J.D., *Tailoring the Physicochemical Properties of Zeolites through Organic-Free Synthesis Methods*, (621ds, CRE Poster Session)

Kumar, M., Luo, H., Roman, Y., Rimer, J.D., *Identifying the Mechanism of SSZ-13 Crystallization and Methods to Tailor Zeolite Properties*, (621ea, CRE Poster Session)

2015 Gordon Research Conference – Nanoporous Materials & Their Applications Holderness, NH

Oleksiak, M.D., Conato, M., Rimer, J.D., *Tailoring the physicochemical properties of zeolites via organic-free synthesis routes*, (Poster Presentation; selected for Short Oral Presentation)

Kumar, M., Rimer, J.D., *Identifying the Mechanism of SSZ-13 Crystallization and Methods to Tailor Material Properties*, (Poster Presentation; selected for Short Oral Presentation)

2015 20th American Conference on Crystal Growth and Epitaxy Big Sky, MT

Vekilov, P.G., Olafson, K.N., Ketchum, M.A., Rimer, J.D., *Molecular Mechanisms of Hematin Crystallization and Inhibition by Antimalarials*, (Oral Presentation)

2015 Foundations of Molecular Modeling and Simulation Portland, OR

Clark, R.J., Rimer, J.D., **Palmer, J.C.**, *Molecular Simulation of Growth Inhibitor Sorption on Zeolites*, (Poster Presentation)

2015 Texas Soft Matter Meeting Houston, TX

Olafson, K.N., Rimer, J.D., Vekilov, P.G., *Classification of Antimalarial Drug Inhibition in Hematin Crystallization*, (Oral Presentation)

2015 Gordon Research Conference – Crystal Growth & Assembly Biddeford, ME

Rimer, J.D., *Non-classical Crystallization Pathways: Mechanisms of Nanoporous Materials Nucleation and Growth*, (Poster Presentation)

Olafson, K.N., Rimer, J.D., Vekilov, P.G., *Modes of Antimalarial Drug Inhibition in Hematin Crystallization*, (Poster Presentation; selected for Short Oral Presentation)

Ketchum, M.A., Rimer, J.D., Vekilov, P.G., *Biomimetic Assay of Hematin Crystallization: A Method to Screen for Effective Antimalarial Drugs*, (Poster Presentation)

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Chung, J. and Rimer, J.D., *Inhibition of Calcium Oxalate Monohydrate Crystallization through Molecular Design*, (Poster Presentation)

Alamani, B.G., Rimer, J.D., *Natural Modifiers of Calcium Oxalate Monohydrate*, (Poster Presentation)

Kwak, J.H., Fan, F., Rimer, J.D., Karande, P., *High-content Screening to Study Peptides that Modify Crystal Habit*, (Poster Presentation)

2015 International School of Biological Crystallization (ISBC)

Grenada, Spain

Alamani, B.G., Rimer, J.D., *Inhibiting Calcium Oxalate Crystallization: Elucidating Modifier-Crystal Interactions*, (Poster Presentation; selected for Short Oral Presentation)

2015 24th North American Catalysis Society Meeting

Pittsburgh, PA

Kumar, M., Rimer, J.D., *Tailoring the Physicochemical Properties of Zeolite Catalysts through Molecular Design*, Catalyst Design and Synthesis (Oral Presentation, #11867)

Kumar, M., **Rimer, J.D.**, *Time-Resolved in Situ Imaging of Zeolite Surface Growth Reveals the Mechanism of Crystallization*, Catalyst Design and Synthesis (Oral Presentation, #12054)

2015 American Chemical Society Spring Meeting

Denver, CO

Ketchum M.A., Rimer, J.D., Vekilov, P.G., *Physiological assay designed to quantify the efficacy and potency of antimalarials*, BIOT 513, Biomolecular & Biophysical Processes

Alamani, B., Rimer, J.D., *Ionic and molecular modifiers of calcium oxalate crystallization: Tailoring Interfacial Interactions*, COLL 502, Basic Research in Colloids, Surfactants & Nanomaterials

2014 Materials Research Society Fall Meeting

Boston, MA

Rimer, J.D., Kumar, M., *In Situ Imaging of Zeolite Surface Growth by Atomic Force Microscopy*, In Situ Characterization of Dynamic Processes during Materials Synthesis and Transformation

2014 American Institute of Chemical Engineers Annual Conference

Atlanta, GA

Olafson, K.N., Vekilov, P.G., Rimer, J.D., *Mechanisms of beta-Hematin Crystallization and Inhibition by Antimalarial Growth Modifiers*

Palmer, J.C., Rimer, J.D., *Simulating the Sorption of Small-Molecule Growth Modifiers on Zeolites*

Kumar, M., Rimer, J.D., *Tailoring the Physicochemical Properties of Zeolite Catalysts through Molecular Design*

Oleksiak, M.D., Conato, M., *Controlling Polymorphism in Organic-Free Syntheses of Zeolites*

Kumar, M., Rimer, J.D., *Controlling the Physicochemical Properties of Zeolite Catalysts through Molecular Design*

Oleksiak, M.D., Conato, M., Rimer, J.D., *Synthesis of Zeolite Catalysts in the Absence of Organic Structure-Directing Agents*

Li, R., Kumar, M., Rimer, J.D., *Nonclassical Pathways of Zeolite Growth: The Transformation from Amorphous Precursors to Crystalline Products*

Li, R., Kumar, M., Rimer, J.D., *Identifying Mechanisms of Zeolite Growth: A Pathway to Catalyst Optimization*

Ghorbanpour, A., Rimer, J.D., Grabow, L.C., *Van der Waal Corrected First-Principles Study of the Methanol-to-DME Reaction Mechanism on H-ZSM-5*

Chung, J., Rimer, J.D., *Controlling Crystal Habit with Tailored Organic Growth Modifiers*

Jeffrey D. Rimer

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Aseem, Conato, M., Harold, M.P., Rimer, J.D., Goldwin, G., *Reaction Studies of Na₂WO₄-Mn/SiO₂ Catalyst for Oxidative Coupling of Methane*

2014 Gordon Research Conference – Biomineralization

New London, NH

Rimer, J.D., *Role of Natural and Synthetic Modifiers of Calcium Oxalate Monohydrate Crystallization*

2014 24th American Conference on Crystal Growth and Epitaxy – West

Fallen Leaf Lake, CA

Rimer, J.D., *Mechanisms of Zeolite Crystallization: The Intersection of Classical and Nonclassical Pathways*

2014 Southwest Catalysis Society Meeting

Houston, TX

Oleksiak, M.D., Rimer, J.D., *Controlling Crystal Polymorphism in Organic-Free Syntheses of Na⁺-Zeolites*

Ghorbanpour, A., Grabow, L.C., Rimer, J.D., *Consequences of the Local Environment on the Activity of Brønsted Acid Sites in Zeolite Catalysts*

Kumar, M., Rimer, J.D., *Tuning Physicochemical Properties of Growth Modifiers to Regulate Zeolite Crystallization*

Li, R., Kumar, M., Rimer, J.D., *Mechanisms of Zeolite L Crystallization*

Conato, M., Rimer, J.D., *A Multiscale Approach to the Rational Design of Zeolite Catalysts*

2014 American Chemical Society Spring Meeting

Dallas, TX

Chung, J., Rimer, J.D., *Tailoring Organic Growth Modifiers of Calcium Oxalate Monohydrate Crystallization*, Inorganic Chemistry, Chemistry of Materials

Rimer, J.D., *New Methodologies in Zeolite Synthesis and In Situ Characterization of Crystal Growth*, Division of Catalysis Science and Technology, Advances in Zeolite Catalysis and Synthesis

2013 American Institute of Chemical Engineers Annual Conference

San Francisco, CA

Rimer, J.D., Oleksiak, M.D., *Designing New Platforms to Control the Properties of Zeolite Catalysts*, Catalysis with Microporous and Mesoporous Materials II (Oral Presentation)

Lupulescu, A.I., Rimer, J.D., *Characterizing the Temporal Evolution of Zeolite Crystallization in the Presence of Growth Modifiers*, Synthesis of Microporous and Mesoporous Materials for Catalysis (Oral Presentation)

Kumar, M., Lupulescu, A.I., Rimer, J.D., *Tuning the Physicochemical Properties of Growth Modifiers to Optimize Zeolite Catalysts*, Catalysis with Microporous and Mesoporous Materials IV (Oral Presentation)

Kumar, M., Lupulescu, A.I., Rimer, J.D., *Tuning Physicochemical Properties of Growth Modifiers to Regulate Zeolite Crystallization* (CRE Poster Competition)

Farmanesh, S., Rimer, J.D., *Role of Urinary Proteins in Moderating Calcium Oxalate Kidney Stone Formation*, Engineering Fundamentals in Life Science (Poster Presentation)

Farmanesh, S., Karande, P., Rimer, J.D., *Rational Design of Biomimetic Crystal Modifiers: Controlling Calcium Biomineralization in Pathological Diseases*, Biomaterials I (Oral Presentation)

Farmanesh, S., Rimer, J.D., *Design of Biomimetic Crystal Modifiers of Calcium Biomineralization as Potential Drug Candidates for Pathological Diseases*, Materials Engineering & Sciences Division (Poster Presentation)

2013 23rd North American Catalysis Society Meeting

Louisville, KY

Oleksiak, M.D., Chinta, S., Rimer, J.D., *Controlling Crystal Polymorphism in Organic-Free Syntheses of Aluminosilicate Zeolite Catalysts*, Catalyst Design and Synthesis – Zeolites I (Oral Presentation)

Ghorbanpour, A., Grabow, L.G., Rimer, J.D., *Tailored Catalytic Properties of MFI-Type Zeolite through Controlled Surface Modifications: Theory, Synthesis, and Catalytic Testing*, Catalyst Design and Synthesis – Zeolites III (Oral Presentation)

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2013 3rd North American Symposium on Chemical Reaction Engineering

Houston, TX

Oleksiak, M.D. and Rimer, J.D.. *Controlling Crystal Polymorphism in Organic-free Synthesis of Na⁺-Zeolites*, (Poster Presentation)

Lupulescu, A.I., Kumar, M., Rimer, J.D.. *A Novel Approach to the Rational Design of Zeolite Catalysts*, (Oral Presentation, 169)

2013 American Chemical Society Spring Meeting

New Orleans, LO

Farmanesh, S., Rimer, J.D.. *Synergistic Effect of Ca²⁺-Binding Proteins on Calcium Oxalate Crystallization*, (Oral Presentation, INOR-17828)

Farmanesh, S., Karande, P., Rimer, J.D.. *Design of Biomimetic Peptides as Inhibitors of Calcium oxalate Monohydrate Crystallization*, (Oral Presentation, INOR-17760)

Lupulescu, A.I., Kumar, M., Rimer, J.D.. *Bioinspired Approach Toward the Development of Optimized Zeolite Catalysts*, (Oral Presentation, CATL-17513)

Lupulescu, A.I., Rimer, J.D.. *Characterizing Zeolite Growth Mechanisms Using In Situ Atomic Force Microscopy and Small-Angle Scattering*, (Oral Presentation, ANYL-17570)

Lupulescu, A.I., Pandey, Y., Doxastakis, M., Rimer, J.D.. *Multiscale Approach to the Rational Design of Zeolite Catalysts*, (Oral and Poster Presentation, ENFL-19973)

Lupulescu, A.I., Rimer, J.D.. *Controlling Crystal Polymorphism in Organic-free Synthesis of Na⁺-Zeolites*, (Poster Presentation, CATL-17293)

Kumar, M., Lupulescu, A.I., Rimer, J.D.. *Tuning Physicochemical Properties of Growth Modifiers to Regulate Zeolite Crystallization*, (Poster Presentation, CATL-17549)

Chung, J., Rimer, J.D.. *Inhibition of Calcium Oxalate Monohydrate Crystallization Using Small Organic Modifiers*, (Poster Presentation, INOR-17703)

Ghorbanpour, A., Grabow, L.C., Rimer, J.D.. *Impact of Spatial Confinement on the Activity of Brønsted Acids in Zeolite Catalysis*, (Poster Presentation, CATL-18232)

Oleksiak, M.D., Chinta, S., Rimer, J.D.. *Controlling Crystal Polymorphism in Organic-free Synthesis of Na⁺-Zeolites*, (Poster Presentation, CATL-17293)

2012 American Institute of Chemical Engineers Annual Conference

Pittsburgh, PA

Lupulescu, A.I., Rimer, J.D.. *Characterizing Zeolite Surface Growth at the Microscopic Level using In Situ Atomic Force Microscopy*, (Oral Presentation)

Lupulescu, A.I., Rimer, J.D.. *Employing Molecular Modifiers to Tailor the Crystal Morphology of Zeolite Catalysts*, (CRE Poster Competition)

Ghorbanpour, A., Grabow, L.C., Rimer, J.D.. *Tailored Catalytic Properties of MFI-Type Zeolite through Controlled Surface Modifications: Theory, Synthesis, and Catalytic Testing*, (Oral Presentation)

2012 Southwest Catalysis Society Meeting

Houston, TX

Ghorbanpour, A., Grabow, L.C., Rimer, J.D.. *Tailored Catalytic Properties of MFI Zeolite through Controlled Surface Modifications: Theory, Synthesis, and Catalytic Testing*, (Poster Presentation)

Lupulescu, A.I., Rimer, J.D.. *Employing Molecular Modifiers to Tailor the Crystal Morphology of Zeolite Catalysts*, (Poster Presentation)

Wang, D., Rimer, J.D., Harold, M.P.. *Towards the Design of Optimal Catalysts for Selective Catalytic Reduction of NO_x: A Study of Ammonia Uptake in Cu- and Fe-ZSM-5*, (Poster Presentation)

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- 2011 American Institute of Chemical Engineers Annual Conference** **Minneapolis, MN**
Lupulescu, A.I., Rimer, J.D.. *Tailoring the Morphology and Structure of Zeolite Catalysts through the use of Molecular Modifiers*, (Oral Presentation, 684a)
- 2011 Gordon Research Conference – Nanoporous Materials & Their Applications** **Holderness, NH**
Rimer, J.D., Lupulescu, A.I., Thai, N.. *Rational Design of Zeolites: A Bio-Inspired Approach to Tailor Structure-Function Properties*, (Poster Presentation)
- 2011 American Chemical Society Spring Meeting** **Anaheim, CA**
Rimer, J.D., An, Z., Zhu, Z., Lee, M.H., Wesson, J.A., Goldfarb, D.S., Ward, M.D.. *Tailoring L-Cystine Crystallization through Molecular Design*, (Poster Presentation)
- 2010 American Institute of Chemical Engineers Annual Conference** **Salt Lake City, UT**
Rimer, J.D., An, Z., Zhu, Z., Lee, M.H., Wesson, J.A., Goldfarb, D.S., Ward, M.D.. *Crystal Growth Inhibitors for the Prevention of L-Cystine Kidney Stones through Molecular Design*, (Oral Presentation)
- 2008 Gordon Research Conference – Biomineralization** **New London, NH**
Rimer, J.D., Wesson, J.A., Ward, M.D.. *Pathological Biomineralization of Calcium Oxalate Kidney Stones*, (Poster Presentation)
- 2008 American Institute of Chemical Engineers Annual Conference** **Philadelphia, PA**
Rimer, J.D., Navrotsky, A., Vlachos, D., Lobo, R.F.. *Microporous Silicate Nucleation and Growth: Mechanistic Investigations Toward Rational Design of Nanocrystalline Materials*, (Oral Presentation 122f)
Rimer, J.D., Wesson, J.A., Ward, M.D.. *Pathological Biomineralization of Calcium Oxalate Kidney Stones*, (Oral Presentation 749g)
- 2007 Gordon Research Conference – Thin Film and Crystal Growth Mechanisms** **South Hadley, MA**
Rimer, J.D., Ward, M.D., Lobo, R.F., Vlachos, D.G., Navrotsky, A.. *Self-assembly and Role of Silica Nanoparticles in the Crystallization of Microporous Silicates*, (Poster Presentation)
- 2006 Gordon Research Conference – Colloidal, Macromolecular, & Polyelectrolyte Solutions** **Ventura, CA**
Rimer, J.D., Lobo, R.F., Vlachos, D.G.. *Self-assembly and Role of Silica Nanoparticles in the Synthesis of Microporous Silicates*, (Poster Presentation)
- 2005 American Institute of Chemical Engineers Annual Conference** **Cincinnati, OH**
Rimer, J.D., Lobo, R.F., Vlachos, D.G.. *Physical Basis for the Formation and Stability of Silica Nanoparticles in Basic Solutions of Monovalent Cations*, (Oral Presentation 588c)
- 2005 Gordon Research Conference – Zeolitic and Layered Materials** **South Hadley, MA**
Rimer, J.D., Fedeyko, J.M., Lobo, R.F., Vlachos, D.G.. *Formation and Evolution of Silica Nanoparticles in the Synthesis of Silicalite-1*, (Poster Presentation)
- 2005 19th North American Catalysis Society Meeting** **Philadelphia, PA**
Rimer, J.D., Lobo, R.F., Vlachos, D.G.. *Silica Nanoparticle Formation and Evolution in the Synthesis of All-Silica Zeolites*, (Oral Presentation 382)
- 2004 American Institute of Chemical Engineers Annual Conference** **Austin, TX**
Rimer, J.D., Lobo, R.F., Vlachos, D.G.. *The Role of Self-Assembled Silica-Tetrapropylammonium Nanoparticles in the Growth of Silicalite-1 Crystals*, (Oral Presentation 590)
- 2004 American Chemical Society 78th Colloid and Surface Science Symposium** **New Haven, CT**
Rimer, J.D., Lobo, R.F., Vlachos, D.G.. *The Role of Self-Assembled Silica-Tetrapropylammonium Nanoparticles in the Growth of Silicalite-1 Crystals*, (Oral Presentation 81)
- 2003 American Chemical Society 77th Colloid and Surface Science Symposium** **Atlanta, GA**
Rimer, J.D., Kragten, D.D., Lobo, R.F., Vlachos, D.G.. *The Growth of Zeolite Crystals From the Deposition of Subcolloidal Silica-template Nanoparticles*, (Oral Presentation 25)

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SELECTED INVITED TALKS

- American Institute of Chemical Engineers Annual Conference** **San Francisco, CA**
MESD Plenary Session (Owens Corning Early Career Award Lecture)
Rimer, J.D., *New Paradigms in Crystal Engineering: Tailoring the Physicochemical Properties of Materials for Chemical and Biomedical Applications*, November 2016
- Association of Crystallization Technology Larson Workshop** **Princeton, NJ**
Rimer, J.D., *Designing Commercially-relevant Methods to Optimize Zeolite Crystallization, Crystallization across Industries*, November 1, 2016
- University of California at Santa Barbara, Department of Chemical Engineering** **Santa Barbara, CA**
Mellichamp Emerging Leader Seminar (Inaugural Lecturer)
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, October 25, 2016
- 5th Workshop on “Zeolites: Perspectives and Challenges”** **Caen, France**
Rimer, J.D., *Identifying New Paradigms in Zeolite Crystal Engineering*, Laboratory of Catalysis & Spectrochemistry Symposium, *Keynote Lecture*, April 25, 2016
- American Chemical Society Spring Meeting** **San Diego, CA**
Rimer, J.D., *Advanced Synthesis Methods and Structure-Performance Relationships in Zeolite Catalysis, Division of Catalysis Science and Technology*, Ipatieff Prize Symposium in Honor of Aditya Bhan, March 14, 2016
- University of Toledo, Department of Chemical and Environmental Engineering** **Toledo, OH**
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, February 18, 2016
- Texas Tech University, Department of Chemical Engineering** **Lubbock, TX**
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, November 20, 2015
- American Institute of Chemical Engineers Annual Conference** **Salt Lake City, UT**
Rimer, J.D., Grabow, L.C., *Designing Metal-Exchanged Zeolites for Non-Oxidative Methane Upgrade to Chemicals*, Frontier Catalysis Research for Methane Conversion to Chemicals, November 9, 2015
- 20th American Conference on Crystal Growth and Epitaxy** **Big Sky, MT**
Rimer, J.D., *Non-Classical Pathways of Nanoporous Zeolite Crystallization*, August 3, 2015
- Gordon Research Conference on Crystal Growth & Assembly** **Biddeford, ME**
Rimer, J.D., *Controlling Crystallization with Molecular Modifiers: Exploring New Pathways to Prevent Pathological and Infectious Diseases*, June 28, 2015
- Gordon Research Conference on Nanoporous Materials & Their Applications** **Holderness, NH**
Rimer, J.D., Title TBD
- International Symposium on Zeolites and Microporous Crystals** **Sapporo, Japan**
Rimer, J.D., *Keynote Lecture*, June 29, 2015 (Declined)
- Massachusetts Institute of Technology, Department of Chemical Engineering** **Cambridge, MA**
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering*, May 1, 2015
- North East Corridor Zeolite Association** **Philadelphia, PA**
Rimer, J.D., *Discovering New Paradigms in Zeolite Synthesis through Rational Design*, December 12, 2014

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- University of Pittsburgh, Department of Chemical Engineering** **Oakland, PA**
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, November 7, 2014
- University of Colorado, Department of Chemical and Biological Engineering** **Boulder, CO**
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, September 23, 2014
- Tulane University, Department of Chemical Engineering** **New Orleans, LA**
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, September 5, 2014
- American Chemical Society Fall Meeting** **San Francisco, CA**
Rimer, J.D., *Enhancing the Performance of Zeolite Catalysts through Rational Design*, Division of Catalysis Science and Technology, Catalysis for Biomass Conversion, 2014
Rimer, J.D. and Motkuri, R.K., *Identifying Zeolite Frameworks for Enhanced CO₂ Capture and Separation Applications*, Division of Energy & Fuels, Carbon Dioxide Management: Recent Advances in Carbon Dioxide Capture, Conversion, Utilization and Storage, 2014
- Pacific Northwest National Laboratories** **Richmond, WA**
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, February 28, 2014
- American Institute of Chemical Engineers Southwest Texas Section Meeting** **Houston, TX**
Rimer, J.D., *Discovering New Paradigms in Zeolite Synthesis through Rational Design*, January 9, 2014
- American Institute of Chemical Engineers Annual Conference** **San Francisco, CA**
Future Directions in Reaction Engineering, Invited Speaker, *Identifying Paradigms in Catalyst Design: An Overview of New Approaches and Future Challenges to Tailor Catalyst Properties and Performance*, 2013
- American Chemical Society Fall Meeting** **Indianapolis, IN**
Rimer, J.D., *Rational Design of Zeolites for Enhanced Production of Energy, Fuels, and Chemicals*, 17390, Porous Materials for Energy Conversion and Storage, Division of Energy and Fuels, 2013
- U.S. DOE Workshop, Particle Mediated Growth** **Berkeley, CA**
Rimer, J.D., *Mechanisms of Zeolite Crystallization*, December 12-14, 2013
- University of California at Berkeley, Department of Chemical Engineering** **Berkeley, CA**
Rimer, J.D., *Discovering New Paradigms in Zeolite Synthesis through Rational Design*, December 11, 2013
- University of Delaware, Department of Chemical and Biomolecular Engineering** **Newark, DE**
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, November 22, 2013
- Villanova University, Department of Chemical Engineering** **Villanova, PA**
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, November 21, 2013
- University of Notre Dame, Department of Chemical and Biomolecular Engineering** **South Bend, IN**
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, November 12, 2013
- George Washington University, Department of Chemistry** **Washington, DC**
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, October 11, 2013

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- Georgetown University, Department of Chemistry** Washington, DC
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, October 10, 2013
- Oklahoma University, Department of Chemical, Biological, and Materials Engineering** Norman, OK
Rimer, J.D., *Identifying New Paradigms in Crystal Engineering for Catalysis and Biomedical Applications*, September 5, 2013
- The Methodist Hospital Research Institute, Texas Medical Center** Houston, TX
Rimer, J.D., *Designing Novel Drugs for Pathological and Infectious Diseases*, October 24, 2012
- University of the Philippines, Department of Chemical Engineering** Diliman, Philippines
Rimer, J.D., *Engineering New Drug Targets for Pathological and Infectious Diseases*, August 6, 2012
Rimer, J.D., *Designing New Platforms to Optimize the Synthesis of Nanoporous Catalysts*, August 8, 2012
- University of the Philippines, School of Medicine** Manila, Philippines
Rimer, J.D., *Rational Drug Design for Pathological and Infectious Diseases*, August 10, 2012
- Fritz Haber Institute, Max Planck Society, Department of Inorganic Chemistry** Berlin, Germany
Rimer, J.D., *Rational Design of Zeolite Catalysts: New Platforms to Tailor Crystal Habit and Polymorphism*, 2012
- Politecnico di Milano, Department of Energy** Milan, Italy
Rimer, J.D., *Rational Design of Zeolite Catalysts: New Platforms to Tailor Crystal Habit and Polymorphism*, 2012
- Asian Crystallographic Technology Society (ACTS) Symposium** Seoul, South Korea
Rimer, J.D., *(Invited) Bio-Inspired Design of Crystal Growth Inhibitors for the Prevention of Kidney Stones*, 2012
- Champion Technologies** Houston, TX
Rimer, J.D., *Crystal Engineering: Colloidal and Interfacial Design of Materials*, February 6, 2012
- American Institute of Chemical Engineers Annual Conference** Minneapolis, MN
Rimer, J.D., *Invited Lecture: Bio-Inspired Design of Microporous Materials*, 2011 (Presentation 266b)
- Rensselaer Polytechnic University, Department of Chemical Engineering** Troy, NY
Rimer, J.D., *Crystal Engineering: Rational Approaches in Bio- and Nanoporous Materials Design*, Aug. 12, 2011
- Soongsil University, Department of Chemical Engineering** Seoul, South Korea
Rimer, J.D., *Crystal Engineering: Rational Approaches in Materials Design*, July 15, 2011
- Total Petrochemicals USA, Inc., Research and Technology Center** Deer Park, TX
Rimer, J.D., *Crystal Engineering and Nanomaterials*, February 11, 2011
- Centre Européen de Calcul Atomique et Moléculaire (CECAM) Workshop** Lyon, France
“Computational Aspects of Building Blocks, Nucleation and Synthesis of Porous Materials”
Rimer, J.D., Lobo, R.F., Vlachos, D.G.. *Self-assembly and Role of Silica Nanoparticles in the Nucleation and Growth of Silicalite-1*, 2006
- Chevron Texaco** Richmond, CA
Rimer, J.D., Fedeyko, J.M., Roth, D.D., Vlachos, D.G., Lobo, R.F.. *Self-assembly and Role of Silica Nanoparticles in the Synthesis of Silicalite-1*, 2006
- Center for Catalytic Science and Technology, University of Delaware** Newark, DE
Rimer, J.D., Lobo, R.F., Vlachos, D.G.. *The Role of Silica Nanoparticles in the Growth of Microporous Silicate Materials*, 2004
- National Institute of Standards and Technology** Gaithersburg, MD
Rimer, J.D., Fedeyko, J.M., Lobo, R.F., Vlachos, D.G.. *The First Stage of Microporous Silicate Growth: Characterization of Silica Nanoparticle Precursors and the Role of Nanoparticles in the Growth Mechanism of Silicalite-1*, 2004

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LEADERSHIP AND SERVICE

Southwest Catalysis Society, Chair (2016 – 2017); Chair-Elect (2015 – 2016); Secretary (2014 – 2015); Director (2012 – 2014)

Advisor for the Organization of Graduate Chemical Engineering Students, U. Houston (2012 – Present)

Founder of the KIPP:UH STEM Alliance, Outreach Program between KIPP HHS and U. Houston (2010 – Present)

Reviewer for 30 Journals (e.g. ACS Nano, Angewandte Chemie International Edition, Journal of the American Chemical Society, Nature Communications, Small, Langmuir, Chemistry of Materials, Crystal Growth & Design, Crystal Engineering Communications, etc.)

Panel Reviewer: National Science Foundation, Department of Energy, American Chemical Society, Israel Science Foundation, Austrian Science Fund

American Institute of Chemical Engineers Annual Conference, MESD and CRE Divisions

Chair/Co-Chair, “Catalysis with Microporous and Mesoporous Materials” (2010 – 2013)

Co-Chair, “In Honor of the R.H. Wilhelm Award Winner” (2012)

Chair, “Advances in Biomaterial Evaluation” (2012)

Chair/Co-Chair, “Advances in the Synthesis of Porous Inorganic Materials” (2010 – 2014)

Session Organizer at National Meetings

American Conference on Crystal Growth and Epitaxy – West (Fallen Leaf Lake, CA), “Fundamentals of Crystallization” (2014)

Materials Research Society, Fall Meeting (Boston, MA), “In Situ Characterization of Dynamic Processes During Self-Assembly, Crystallization, and Phase Transformations” (2014)

American Chemical Society, Spring Meeting (Dallas, TX), “Advances in Zeolite Catalysis and Synthesis” (2014)

Materials Research Society, XXII International Materials Research Congress (Cancun, Mexico), “Materials for Environmental Remediation and Sensing” (2013)

Undergraduate and Graduate Research Mentor, New York University (2007 – 2009)

President of the Chemical Engineering graduate student organization, University of Delaware (2002 – 2005)

Undergraduate Research Mentor, University of Delaware (2002 – 2005)

PROFESSIONAL AND SCIENTIFIC SOCIETIES

American Institute of Chemical Engineers (AIChE), American Chemical Society (ACS), American Society of Engineering Education (ASEE), Materials Research Society (MRS), American Association for the Advancement of Science (AAAS), Southwest Catalysis Society (SCS), North American Catalysis Society (NACS), New York Academy of Sciences (NYAS), Philadelphia Catalysis Club, Tau Beta Pi National Engineering Honor Society, Sigma Xi Scientific Research Society, Omega Chi Epsilon National Chemical Engineering Honor Society, Lambda Sigma National Honor Society, Phi Beta Kappa National Honor Society, Omicron Delta Kappa National Leadership Honor Society.

TEACHING EXPERIENCE

University of Houston, Department of Chemical and Biomolecular Engineering

Fall 2016 Chemical Reaction Engineering, CHEE 4367, Instructor

Spring 2016 Applications of Heterogeneous Catalysis, Short Course, Contributor

Spring 2016 Chemical Engineering Thermodynamics I, CHEE 2332, Instructor

Fall 2015 Topics in Colloids and Interface Science, CHEE 6322, Instructor

Fall 2015 Chemical Engineering Challenges, CHEE 1131, Contributor for Nanomaterials Section

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Spring 2015 Chemical Engineering Thermodynamics I, CHEE 2332, Instructor
Spring 2015 Applications of Heterogeneous Catalysis, Short Course, Contributor
Fall 2014 Chemical Engineering Challenges, CHEE 1131, Contributor for Nanomaterials Section
Fall 2014 Chemical Engineering Thermodynamics I, CHEE 2332, Instructor
Spring 2014 Unit Operations, CHEE 3462, Instructor
Spring 2014 Experimental Methods, CHEE 6327, Contributor for X-Ray Diffraction
Fall 2013 Topics in Colloids and Interface Science, CHEE 6322, Instructor
Fall 2013 Chemical Engineering Challenges, CHEE 1131, Contributor for Nanomaterials Section
Spring 2013 Unit Operations, CHEE 3462, Instructor
Spring 2013 Applications of Heterogeneous Catalysis, Short Course, Contributor
Fall 2012 Unit Operations, CHEE 3462, Instructor
Fall 2012 Chemical Engineering Challenges, CHEE 1131, Contributor for Nanomaterials Section
Spring 2012 Unit Operations, CHEE 3462, Instructor
Fall 2011 Topics in Colloids and Interface Science, CHEE 6397, Instructor
Spring 2011 Unit Operations, CHEE 3462, Instructor
Fall 2010 Chemical Reaction Engineering, CHEE 4367, Instructor
Fall 2009 Topics in Colloids and Interface Science, CHEE 6397, Instructor

University of the Philippines, Department of Chemical Engineering

Summer 2012 Materials Science and its Applications in Chemical Engineering, ChE 298/198, Instructor

University of Delaware, Department of Chemical Engineering

Spring 2004 Fluid Mechanics, CHEG 341, Teaching Assistant

Fall 2003 Introduction to Chemical Engineering, CHEG 112, Teaching Assistant

Allegheny College, Department of Chemistry

1998 – 1999 Introductory Chemistry Laboratory, CHEM 102, Teaching Assistant

Fall 1998 Introductory Chemistry Laboratory, CHEM 116, Teaching Assistant

STUDENT SUPERVISION

Postdoctoral Fellows: Ming-Feng Hsieh, Marlon T. Conato, Elena V. Petrova, Mariano Susman

Graduate Students: Bryan Alamani, Aseem Chawla, Madhuresh Choudhary, Jihae Chung, Sahar Farmanesh (Ph.D. 2013), Arian Ghorbanpour (Ph.D. 2015), Megan Ketchum, Manjesh Kumar, Thuy T. Le, Rui Li, Alexandra I. Lupulescu (Ph.D. 2013), Katy N. Olafson, Matthew D. Oleksiak, Yufeng Sheng, Wei Qin, Di Wang (M.S., 2012), Yunwen Zhou

Undergraduate Students: Temitope Ajala, Maneesh Anand, Ashwin Antony, Zachery Baker, Julieanne Baldwin, Diego Campanella, Mangalaa Dinivahi, Diego Guala, Megan Ketchum, Eduardo Lyra, Miguel Maldonado, Karla Munoz, Kristen Nordstrom, Matthew Patton, Gautham Prakash, Stephanie Roohi, James Sutjianto, Wei Qin, Ricardo Sosa, Zheng Zhao

High School Students: Elliot Landon, Nhan Thai, Paschalis Economou

GRADUATE AND UNDERGRADUATE STUDENT AWARDS AND HONORS

- 2016 PURS Fellowship, University of Houston, Zachery Baker

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- 2016 SURF Scholarship, University of Houston, Mangalaa Dinivahi
- 2016 Scholars Program Scholarship, University of Houston, Zachery Baker
- 2016 National Science Foundation Graduate Research Fellowship, Ricardo Sosa
- 2016 PURS Fellowship, University of Houston, Matthew Patton
- 2015 AIChE Best Presentation Award, Diagnostics, Treatment, and Theranostics (Topical Conference: Chemical Engineers in Medicine), Megan Ketchum
- 2015 Organization for Chemical Engineering Graduate Students (OCheGS) Symposium Oral Presentation Award, Manjesh Kumar
- 2015 Organization for Chemical Engineering Graduate Students (OCheGS) Symposium Poster Award, Katy Olafson
- 2015 Poster Selected for Oral Presentation, Gordon Research Conference on Nanoporous Materials & Their Applications, Matthew Oleksiak
- 2015 Poster Selected for Oral Presentation, Gordon Research Conference on Nanoporous Materials & Their Applications, Manjesh Kumar
- 2015 First Prize Winner of the ACCGE-20 Photo Contest for Natural Untouched Photograph or Micrograph, American Conference on Crystal Growth & Epitaxy, Rui Li
- 2015 Travel Award to the Gordon Research Conference on Crystal Growth & Assembly, Jihae Chung
- 2015 Poster Selected for Oral Presentation, Gordon Research Conference on Crystal Growth & Assembly, Katy Olafson
- 2015 Travel Award to the Gordon Research Conference on Crystal Growth & Assembly, Katy Olafson
- 2015 International School on Biological Crystallization (ISBC), Selected for Oral Talk (6 selected out of 44 posters), Bryan Alamani
- 2015 International School on Biological Crystallization (ISBC) Travel Award, Bryan Alamani
- 2015 Best Poster Award, *Southwest Catalysis Society Symposium*, Rui Li
- 2015 UH Summer Undergraduate Research Fellowship, Ashwin Antony
- 2015 Kokes Travel Award, 24th North American Catalytic Society Meeting, Manjesh Kumar
- 2014 AIChE Best Presentation Award, *Particle Formation and Crystallization Processes from Liquids, Slurries, and Emulsions*, Jihae Chung (Invited to Submit “Best Paper” to the AIChE Journal)
- 2014 AIChE CRE Poster Award, Matthew Oleksiak
- 2014 AIChE CRE Travel Award, Matthew Oleksiak
- 2014 Selection for the UH Annual Graduate Research and Scholarship Projects (GRaSP) Day, Katy Olafson
- Research Excellence Award and Third Place Winner of the Chinese-American Chemical Society Southwest Chapter Poster Award Poster Competition, Rui Li
- 2014 OCheGS Symposium Poster Award Winner, Rui Li
- 2014 Louis Stokes Alliance for Minority Participation Scholarship, Ricardo Sosa
- 2014 UH Provost’s Undergraduate Research Scholarship, Maneesh Anand
- 2014 Best Dissertation Award, Cullen College of Engineering, Alexandra Lupulescu
- 2014 Southwest Catalysis Society Symposium Best Poster Award, Manjesh Kumar
- 2014 Southwest Catalysis Society Symposium Best Poster Award, Matthew Oleksiak

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- 2014 SURF Fellowship, Rim Henini (Declined)
- 2013 ERDT Research Fellowship from the University of the Philippines, Bryan Alamani
- 2013 Keck Center Annual Research Conference Poster Contest, Second Place, Katy Olafson
- 2013 AIChE CRE Travel Award, Manjesh Kumar
- 2013 AIChE Sustainable Engineering Forum Student Paper Award, Honorable Mention, Alexandra Lupulescu
- 2013 Keck Center Fellowship, Gulf Coast Consortia, Nanobiology Interdisciplinary Graduate Training Program, Katy Olafson
- 2013 Southwest Catalysis Society Symposium Best Poster Award, Alexandra Lupulescu
- 2013 Poster Award Honorable Mention, 3rd North American Symposium on Chemical Reaction Engineering, Matthew Oleksiak
- 2013 Kokes Travel Award, 23rd North American Catalytic Society Meeting, Matthew Oleksiak
- 2013 ACS Student Travel Award, Catalysis Science and Technology (CATL), Alexandra Lupulescu
- 2012 AIChE CRE Poster Award, Alexandra Lupulescu
- 2012 AIChE CRE Travel Award, Alexandra Lupulescu
- 2012 AIChE CRE Travel Award, Arian Ghorbanpour
- 2012 AIChE Environmental Division's Graduate Student Award, 2nd Place Winner, Alexandra Lupulescu
- 2012 Most Outstanding Senior Thesis (UH Honors College), Miguel Maldonado
- 2012 Southwest Catalysis Society Symposium Best Poster Award, Alexandra Lupulescu
- 2011 Organization for Chemical Engineering Graduate Students (OCheGS) Symposium Poster Award Winner, Arian Ghorbanpour
- 2011 PURS Fellowship, University of Houston, Temitope Ajala
- 2011 SURF Fellowship, University of Houston, Miguel Maldonado
- 2010 PURS Fellowship, University of Houston, Miguel Maldonado