

QIANLI RICK CHU, Ph.D.

Department of Chemistry, University of North Dakota
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EDUCATION

Ph.D. University of Iowa, Iowa City, IA

Jul. 2001 - Dec. 2005

B.Sc. Shanghai University, P. R. China

Sept. 1993 - Jun. 1997

PROFESSIONAL EXPERIENCE

Associate Professor of Chemistry

Aug. 2015 - Present

University of North Dakota

Assistant Professor of Chemistry

Aug. 2009 – Jul. 2015

University of North Dakota

Postdoctoral Research Scholar

Oct. 2006 – May. 2009

University of Pittsburgh

Advisor: *Prof. Dennis P. Curran*

Postdoctoral Research Scholar

Oct. 2005 - Sept. 2006

Fluorous Technologies, Inc.

Research Assistant

Sept. 2001 - Sept. 2005

University of Iowa

Advisor: *Prof. Leonard R. MacGillivray*

Research Assistant

Jul. 1997 - Jun. 2001

Shanghai Institution of Organic Chemistry, Chinese Academy of Sciences

Advisor: *Prof. Shizheng Zhu*

AWARDS & DISTINCTIONS

- Invited manuscript for *ChemComm* Emerging Investigators Themed Issue **2014**
- Invited manuscript for *CrystEngComm* North America IYCr Celebration Themed Issue **2014**
- Invited manuscript for *CrystEngComm* New Talent Americas Themed Issue **2012**
- Excellence in Synthetic Chemistry Award, **Dec. 2007** (by MGK Scientific, LLC.)
- IUCr Poster Award at the XIIIth International Symposium on Supramolecular Chemistry, **Jul. 2004** (by International Union of Crystallography)
- Distinguished Overseas Chinese Graduate Student Award, **Nov. 2003** (by Ministry of Education of the People's Republic of China and the China Scholarship Council)
- Excellent Research Paper Award, **Sept. 2003** (by Shanghai Science & Technology Association)
- Shanghai Distinguished Research Award, **Apr. 2002** (by Science and Technology Commission of Shanghai Municipality)
- Fluorine-Containing Donor-Acceptor Complex (*J. Am. Chem. Soc.*, **2001**, *123*, 11069) was highlighted by *C&EN News* **2001**, *79(44)*, 22.

PUBLICATIONS (*Corresponding Author)

45. Wang, Z. D.; Elliott, Q.; Wang, Z.; Setien, R. A.; Puttkammer, J.; Ugrinov, A.; Lee, J.; Webster, D. C.*; **Chu, Q. R.*** "Furfural-Derived Diacid Prepared by Photoreaction

for Sustainable Materials Synthesis” *ACS Sustainable Chem. Eng.* **2018**, *6*, 8136-8141

44. **Chu, Q.**; Duncan, A. J. E.; Papaefstathiou, G. S.; Hamilton, T. D.; Atkinson, M. B. J.; Mariappan, S. V. S.; MacGillivray, L. R.,* “Putting Cocrystal Stoichiometry to Work: A Reactive Hydrogen-Bonded ‘Superassembly’ Enables Nanoscale Enlargement of a Metal-Organic Rhomboid via a Solid-State Photocycloaddition” *J. Am. Chem. Soc.* **2018**, *140*, 4940-4944.
43. Wang, Z.; Miller, B.; Butz, J.; Randazzo, K.; Wang, Z. D.; and **Chu, Q. R.*** “Polyladderane Constructed from Gemini Monomer via Photoreaction” *Angew. Chem. Int. Ed.* **2017**, *56*, 12155-12159.
42. Wang, Z.; Miller, B.; Mabin, M.; Shahni, R.; Wang, Z. D.; Ugrinov, A.; and **Chu, Q. R.*** “Cyclobutane-1, 3-Diacid (CBDA): A Semi-Rigid Building Block Prepared by [2+ 2] Photocyclization for Polymeric Materials” *Sci. Rep.* 2017, *7 (1)*, 13704
41. Hou, X.; Butz, J.; Chen, J.; Wang, Z. D.; Zhao, J. X.; Shiu, T.; **Chu, Q. R.*** “Low Molecular Weight Organogelators Derived from Threefold Symmetric Tricarbamates” *Tetrahedron Lett.* **2017**, *58*, 101–105. (*Front Cover of the 1st Issue in 2017*)
40. Randazzo, K.; Wang, Z.; Wang, Z. D.; Butz, J.; **Chu, Q. R.*** “Lighting the Way to Greener Chemistry: Incandescent Floodlights as a Facile UV Light Source for Classic and Cutting-Edge Photoreactions” *ACS Sustain. Chem. Eng.* **2016**, *4*, 5053-5059.
39. Wang, Z.; Kastern, B.; Randazzo, K.; Ugrinov, A.; Butz, J.; Seals, D.; Sibi, M. P. and **Chu Q. R.*** “Linear Polyester Synthesized from Furfural-based Monomer by Photoreaction in Sunlight” *Green Chem.* **2015**, *17(10)*, 4720-4724 (*Featured as a Cover Story*).
38. Wang, Z.; Randazzo, K.; Hou, X.; Simpson, J.; Struppe, J.; Ugrinov, A.; Kastern, B.; Wysocki, E.; **Chu, Q. R.*** “Stereoregular Two-Dimensional Polymers Constructed by Topochemical Polymerization. *Macromolecules.* **2015**, *48(9)*, 2894-2900.
37. Hou, X.; Wang, Z.; Overby, M.; Ugrinov, A.; Oian, C.; Singh, R.; and **Chu Q.*** “A Two-Dimensional Hydrogen Bonded Organic Framework Self-Assembled from a Three-Fold Symmetric Carbamate” *Chem. Commun.* **2014**, *50*, 5209-5211. (*Invited, Emerging Investigators Themed Issue 2014*)
36. Chen, J.; Wu, X.; Hou, X.; Su, X.; **Chu, Q.**; Fahrudin, N.; and Zhao J.* “Shape-Tunable Hollow Silica Nanomaterials Based on Soft-templating Method and Their Application as Drug Carrier” *ACS Appl. Mater. Interfaces*, **2014**, *6*, 21921–21930.
35. Wang, Z.; Lee, J.; Oian, C.; Hou, X.; Wang, Z.; Ugrinov, A.; Singh, R. K.; Wysocki, E.; **Chu Q. R.*** “An Unsaturated Hydrogen Bonded Network Generated from Three-fold Symmetric Carbamates” *CrystEngComm* **2014**, *16*, 1776-1779. (*Invited, North America 2014 IYCr Celebration Themed Issue*)
34. Hou, X.; Wang, Z.; Lee, J.; Wysocki, E.; Oian, C.; Schlak, J.; and **Chu Q.*** “Synthesis of Polymeric Ladders by Topochemical Polymerization” *Chem. Commun.* **2014**, *50*, 1218-1220.
33. Singh, R.; Hou, X.; Overby, M.; Schober, M. and **Chu, Q.*** “Hydrogen Bonded Chiral Sheet Self-assembled from a C₃-Symmetric Tricarbamate” *CrystEngComm* **2012**, *14*, 6132–6135. (*Invited, New Talent Americas Themed Issue 2012*)
32. Hou, X.; Schober M. and **Chu, Q.*** “A Chiral Nanosheet Connected by Amide Hydrogen Bonds”. *Cryst. Growth Des.* **2012**, *12*, 5159-5163.

31. Singh, R.; Schober, M.; Hou, X.; Seay, A. and **Chu, Q.*** “Facile and Efficient Synthesis of C₃-Symmetric Benzoxazine: A Novel Tri-arm Molecular Scaffold” *Tetrahedron Lett.* **2012**, *53*, 173-175.
30. **Chu, Q.***; O'Neal, K.; Osipov, M.; Ngwendson, J. N.; Geib, S. J.; Weber S. G.; Curran, D. P.; “Synthesis, Characterization, and Applications of Fluorous Resorcin[4]arenes” *New J. of Chem.* **2010**, *34*, 2732-2734. ([RSC Fluorine Chemistry Themed Issue 2011](#))
29. Solovyev A., **Chu Q.**, Geib S. J., Fensterbank L., Malacria M., Lacôte E., Curran D. P. “Substitution Reactions at Tetracoordinate Boron: Synthesis of N-Heterocyclic Carbene Boranes with Boron-Heteroatom Bonds.” *J. Am. Chem. Soc.* **2010**, *132*, 15027-15080.
28. Walton, J. C.; Brahmi, M. M.; Fensterbank, L.; Lacôte, E.; Malacria, M.; **Chu, Q.**; Ueng, S.-H.; Solovyev, A.; Curran, D. P. “EPR studies of the generation, structure, and reactivity of n-heterocyclic carbene borane radicals” *J. Am. Chem. Soc.* **2010**, *132*, 2350-2358.
27. **Chu, Q.**; Makhlof Brahmi, M.; Solovyev, A.; Ueng, S-H; Curran, D. P.; Malacria, M.; Fensterbank, L.; Lacote, E. “Ionic and Organometallic Reductions with N-Heterocyclic Carbene Boranes” *Chem. Eur. J.* **2009**, *15*, 12937-12940.
26. Osipov, M.; **Chu, Q.**; Geib, S. J.; Curran, D. P. and Weber S. G. “Synthesis of Deep-cavity Fluorous Calix[4]arenes as Molecular Recognition Scaffolds” *Beilstein J. Org. Chem.* **2008**, *4*, No. 36. (*Online journal, no page number*)
25. **Chu, Q.**; Henry, C.; Curran, D. P. “Second-Generation Tags for Fluorous Chemistry Exemplified with a New Fluorous Mitsunobu Reagent” *Org. Lett.* **2008**, *10*, 2453-2456.
24. **Chu, Q.**; Yu, M. S.; Curran, D. P. “CBS Reductions with a Fluorous Prolinol Immobilized in a Hydrofluoroether Solvent” *Org. Lett.* **2008**, *10*, 749-752.
23. MacGillivray, L. R.; Papaefstathiou, G. S.; Friscic, T.; Hamilton, T. D.; Bučar, D-K.; **Chu, Q.**; Varshney, D. B.; Georgiev, I. G. “Supramolecular Control of Reactivity in the Solid State: From Templates to Ladderanes to Metal-Organic Frameworks.” *Acc. Chem. Res.* **2008**, *41*, 280-291.
22. **Chu, Q.**; Yu, M. S. and Curran D. P. “New Fluorous/Organic Biphasic Systems Achieved by Solvent Tuning” *Tetrahedron* **2007**, *63*, 9890–9895.
21. Bučar, D-K.; Papaefstathiou, G. S.; Hamilton, T. D.; **Chu, Q.**; Georgiev, I. G. MacGillivray, L. R.; “Template-Controlled Reactivity in the Organic Solid State via Principles of Coordination-Driven Self-Assembly.” *Eur. J. Inorg. Chem.* **2007**, *29*, 4559-4568.
20. Zhang, W.; Williams, J. P.; Lu, Y.; Nagashima, T.; **Chu, Q.** “Fluorous synthesis of sclerotigenin-type benzodiazepine-quinazolinones.” *Tetrahedron Lett.* **2007**, *48*, 563-565.
19. **Chu, Q.**; Zhang, W. and Curran, D. P. “A Recyclable Fluorous Organocatalyst for Diels-Alder Reactions” *Tetrahedron Lett.* **2006**, *47*, 9287-9290.
18. Huang, Q.; Wang, Z.; **Chu, Q.**; Zhu, S. “Crystal Structure of a Supramolecular Complex Formed between 1-bromo-2-iodotetrafluoroethane and *N,N,N',N'*-tetramethylethylenediamine” *J. Incl. Phenom. Macro.* **2006**, *54*, 177-180.
17. **Chu, Q.**; Swenson, D. C.; MacGillivray, L. “A Single-Crystal-to-Single-Crystal Reaction Mediated by Argentophilic Forces Converts a Self-Assembled Complex into a Coordination Network.” *Angew. Chem. Int. Ed.* **2005**, *44*. 3569-3572. ([Has been cited more than 230 times based on Scifinder](#))
16. **Chu, Q.**; Wang, Z.; Huang, Q.; Zhu, S. “Fluorine-containing donor-acceptor complexes: crystallographic study of the interactions between electronegative atoms (N, O, S) and halogen atoms (I, Br)” *New J. Chem.* **2003**, *27(10)*, 1522-1527.

15. Zhu, S.; Mao, Y.; Qin, C.; **Chu Q.** and Hu, C. "A Convenient Preparation of Octafluoro[2, 2]paracyclophane and Dodecafluoro[2, 2]Paracyclophane" *Tetrahedron Lett.* **2002**, *43*, 669-671.
14. **Chu, Q.**; Wang, Z.; Huang, Q.; Zhu S. "Fluorine-Containing Donor-Acceptor Complex: Infinite Chain Formed by Oxygen-Iodine Interaction" *J. Am. Chem. Soc.*, **2001**, *123*, 11069-11070. ([Highlighted by C&EN News 2001, 79\(44\), 22.](#))
13. **Chu, Q.**; Song, L.; Jin, G.; Zhu, S. "Study on the Reaction of Fluorinated α , β -Unsaturated Carbonyl Compounds with Nitrogen and Sulfur Dinucleophiles" *J. Fluorine Chem.* **2001**, *108*, 51-56.
12. Song, L.; **Chu, Q.**; Zhu, S. "Synthesis of Fluorinated Pyrazole Derivatives from β -Alkoxyvinyl Trifluoroketones" *J. Fluorine Chem.* **2001**, *107*, 107-112.
11. **Chu, Q.**; Wang, Y.; Zhu, S. "A Novel Method for Preparation of Trifluoromethyl Substituted 2,3-Dihydro-1,4-diazepine and Benzimidazole" *Synth. Commun.* **2000**, *30(4)*, 677-687.
10. Zhu, S.; Qin, C.; Xu, G.; **Chu, Q.**; Huang, Q. "Reactions of 5-Trifluoroacetyl-3,4-dihydro-2H-pyran with Zinc Reagents" *J. Fluorine Chem.* **1999**, *99*, 141-144.
9. Zhu, S.; Qin, C.; Wang, Y.; **Chu, Q.** "Preparation of 1-Trifluoroacetyl Indolizine and their Derivatives via the Cycloaddition of Pyridinium N-Ylides with 4-Ethoxyl-1,1,1-trifluoroethyl-3-one" *J. Fluorine Chem.* **1999**, *99*, 183-187.
8. Xu, B.; Xu, G.; Qin, C.; Xu, Y.; **Chu Q.** and Zhu, S. "Syntheses and Reactions of N-Perfluoroalkanesulfonylimino Sulfurous Dichlorides" *Heteroat. Chem.* **1999**, *10(1)*, 41-48.
7. Zhu, S.; Xu, G.; **Chu, Q.**; Xu, Y.; Qin, C.; "Synthesis of Fluorine-Containing Symmetrical N, N-Alkylidene Bisamides" *J. Fluorine Chem.* **1999**, *93*, 69-71.
6. Zhu, S.; Xu, G.; Qin, C.; Xu, Y.; **Chu, Q.** and DesMarteau, D. D. "Chemical Transformation of Bis((perfluoroalkyl)sulfonyl)methanes and 1,1,3,3-Tetraoxopolyfluoro-1,3-dithiacycloalkanes" *Heteroat. Chem.* **1999**, *10(2)*, 147-151.
5. Zhu, S.; Xu, G.; Qin, C.; **Chu, Q.** and Xu, Y. "Study on the Nucleophilic Reaction of 5-Trifluoroacetyl-3,4-dihydro-2H-pyran" *Monatsh. Chem.* **1999**, *130*, 671-680.
4. Zhu, S.; Xu, G.; Qin, C.; Xu, Y.; **Chu, Q.** "Preparation and Reaction of Bis(perfluoroalkanesulfonyl)methyl Halides" *Chin. J. Chem.* **1998**, *16(3)*, 264-271.
3. Zhu, S.; **Chu, Q.**; Xu, G.; Qin, C.; Xu, Y. "A Convenient One-Pot Synthesis of Per(or poly) fluoroalkanesulfonyl Substituted Cyclopropanes" *J. Fluorine Chem.* **1998**, *91*, 195-198.
2. Zhu, S.; Xu, G.; Qin, C.; Xu, Y.; **Chu, Q.** "Synthesis of Diethyl N-(Perfluoroalkanesulfonyl) phosphoramidates and N-(Perfluoroalkanesulfonyl)phosphoramidic Acid" *Phosphorus Sulfur Silicon Relat. Elem.* **1998**, *140*, 53-61.
1. Zhu, S.; Qin, C.; Xu, G.; Xu, Y.; **Chu, Q.** "A Convenient Synthesis of a New Push-pull Alkenes: β -Alkoxy Vinyl Trifluoromethyl Sulfones" *Tetrahedron Lett.* **1998**, *39*, 5265-5268.

PATENTS

2. Chu Q.; Wang, Z.; "Cyclobutane-1, 3-Diacid Building Blocks" Application Filed in June **2018**.
1. Chu Q. "Carbon Dioxide Capture and Conversion to a Carbamate Salt and Polyurea" US 2014/0024800 A1, US 13/550,943.

SELECTED PRESENTATIONS

(O: Oral presentation, P: Poster presentation, Presenter)

- 57.(O) “Construction of Cyclobutane-containing Polymer (CBP) by Using [2+2] Photocycloaddition” Chu, Q. R. *256th American Chemical Society (ACS) National Meeting*, Boston, (Aug. 24, **2018**)
- 56.(O) “Polycyclobutane Synthesized Using Supramolecular Principles” Chu, Q. R. *Atwood Bash to celebrate the 75th birthday of Prof. Jerry Atwood*, Newry, ME (Jun. 29, **2018**)
- 55.(P) “Cyclobutanedicarboxylic Acids (CBDAs): Promising Building Blocks for Materials Synthesized from Renewable Sources via Photoreaction” Chu, Q. R. *Gordon Research Conferences: Crystal Engineering*, Newry, ME (Jun. 26, **2018**)
- 54.(O) “Polycyclobutane (PCB) Synthesized via Photoreaction” Chu, Q. R. *254th American Chemical Society (ACS) National Meeting*, Washington, D.C. (Aug. 22, **2017**)
- 53.(O) “Synthesis of Polycyclobutane from Biomass-Derived Starting Materials” Chu, Q. R. *The 2017 Great Lakes Regional Meeting (GLRM)*, Fargo, ND (Jun. 28, **2017**)
- 52.(P) “Polycyclobutanes (PCBs) Constructed Using Supramolecular Principles” Chu, Q. R. *Bruker/MIT Symposium*, Cambridge, MA (Feb. 25, **2017**)
- 51.(O) “Materials Synthesized Using Symmetric Building Blocks: From Chiral Helix to Sustainable Polycyclobutane” Chu, Q. R. *Department of Chemistry and Chemical Biology, University of California Merced*, Merced, CA (Jan. 20, **2017**)
- 50.(O) “Synthesis and Characterization of Polycyclobutanes (PCBs)” Chu, Q. R. *252th ACS National Meeting*, Philadelphia, PA (Aug. 25, **2016**)
- 49.(O) “Organic Materials Constructed Using Supramolecular Principles: From Hydrogen Bonded Frameworks to Polycyclobutanes” Chu, Q. R. *Telluride Scientific Research Conference: The First "Energy and Movement in Coherent Chemical Systems" Workshop*, Telluride, CO (Jul. 6, **2016**)
- 48.(P) “Bioinspired Synthesis of Ladder and Two-dimensional Polymers” Chu, Q. R. *Professor Stephen F. Martin 70th Birthday Symposium, University of Texas at Austin*, Austin, TX (Feb. 6, **2016**)
- 47.(O) “Synthesis of Chiral and Stereoregular Materials from Achiral Molecules” Chu, Q. R. *Department of Chemistry and Chemical Biology, Northeastern University*, Boston, MA (Oct. 23, **2015**)
- 46.(O) “Construction of Chiral Materials Using Supramolecular Atropisomers” Chu, Q. R. *250th ACS National Meeting*, Boston, MA (Aug. 16, **2015**)
- 45.(O) “Construction of Organic Nanostructures Using Symmetric Building Blocks: From Supramolecular Helix to Biomass Derived 2D Polymer” Chu, Q. R. *Department of Chemistry, Kansas State University*, Manhattan, KS (Apr. 2, **2015**)
- 44.(O) “Bioinspired Synthesis of Organic Nanomaterials: From Supramolecular Helix to Two-dimensional Polymer” Chu, Q. R. *Department of Chemistry, University of Connecticut*, Storrs, MA (Feb. 6, **2015**)
- 43.(O) “Construction of Organic Nanomaterials: From Supramolecular Sheet to Two-dimensional Polymer” Chu, Q. R. *Department of Chemistry, University of Massachusetts Lowell*, Lowell, MA (Jan. 30, **2015**)
- 42.(O) “Synthesis of Organic Nanostructures: From Supramolecular Helix to Biomass Derived Two-Dimensional Polymer” Chu, Q. R. *Department of Chemistry, University of Manitoba*, Winnipeg, Canada (Jan. 9, **2015**)

- 41.(O) “Bioinspired Synthesis of Organic Nanomaterials: From Supramolecular Helix to Biomass Derived 2D Polymer” Chu, Q. R. *Department of Chemistry, University of New Hampshire, Durham, NH (Dec. 2, 2014)*
- 40.(O) “Construction of Organic Nanostructures Using Symmetric Building Blocks: From Supramolecular Helix to Biomass Derived 2D Polymer” Chu, Q. R. *Department of Chemistry, Iowa State University, Ames, IA (Nov. 14, 2014)*
- 39.(O) “Bioinspired Approach Construction of Organic Nanomaterials: From a Supramolecular Helix to Biomass Derived 2D Polymers” Chu, Q. R. *Department of Chemistry, Tufts University, Medford, MA (Sept. 23, 2014)*
- 38.(O) “Construction of Polymeric Ladders from Plant-Derived Raw Materials” Chu, Q. R.; Hou, X.; Wang, Z.; Wysocki, E.; and Randazzo, K. *XXIVth Midwest Organic Solid-State Chemistry Symposium, Iowa City, IA (Jun. 2014)*
- 37.(P) “Construction of Ladder and Two-dimensional Polymers by Topochemical Polymerization” Chu, Q. R. *Gordon Research Conferences: Crystal Engineering, Waterville Valley, NH (Jun. 2014)*
- 36.(O) “Synthesis of Ladder and Two-dimensional Polymers Using Biomass-derived Building Blocks” Chu, Q. R. *NDSU-UND Sustainable Materials Science Meeting, Fargo, ND (May 2014)*
- 35.(O) “Construction of Organic Nano-structures Using Symmetric Building Blocks: From Supramolecular Helix to Biomass Derived 2D Polymer” Chu, Q. R. *Chemistry Department, University of North Dakota, Grand Forks, ND (Mar. 2014)*
- 34.(O) “Ladder and Two-dimensional Polymers via a Bio-inspired Approach” Chu, Q. R. *Chemistry Department, University of Massachusetts Boston, Boston, MA (Nov. 2013)*
- 33.(O) “Synthesis of Ladder and Two-dimensional Polymers by Topochemical Photopolymerization” Chu, Q. R. *ACS Northeast Regional Meeting (NERM), New Haven, CT (Oct. 2013)*
- 32.(P) “Construction of Covalently Bonded Nanoladders” Chu, Q. R. *Bruker/MIT Symposium, Cambridge, MA (Feb. 2013)*
- 31.(O) “Construction of Nano-structures Using Symmetric Molecules as Building Blocks” Chu, Q. R. *Department of Chemistry and Biochemistry, North Dakota State University, Fargo, ND (Nov. 2012)*
- 30.(P) “Chiral Sheets Self-assembled from C_3 -Symmetric Supramolecular Atropisomers” Chu, Q. R.; Hou, X.; Singh, R.; Schober, M. *Annual Meeting of American Crystallographic Association, Boston, MA (Jul. 2012)*
- 29.(P) “Organic Chiral Sheets Connected by Hydrogen Bonds” Chu, R. Q. *Gordon Research Conferences: Crystal Engineering, Waterville Valley, NH (Jun. 2012)*
- 21.(O) “Using Molecules to Build Molecules: My Journal in Chemistry” Chu, Q. R. *Recruiting Seminar:*
- i) Shanghai University, P. R. China (Sept. 2010)
 - ii) Fudan University, P. R. China (Sept. 2010)
 - iii) East China University of Science and Technology, P. R. China (Sept. 2010)
 - iv) Shanghai Institute of Organic Chemistry, P. R. China (Sept. 2010)
 - v) University of Minnesota Morris, Morris, MN (Mar. 2010)
 - vi) Saint Cloud State University, Saint Cloud, MN (Mar. 2010)
 - vii) Luther College, Decorah, IA (Feb. 2010)
 - viii) University of Minnesota Duluth, Duluth, MN (Jan. 2010)

- 20.(O) "Using Molecules to Build Molecules: My Journal in Chemistry" Chu, Q. R. *Department of Physics and Astrophysics, University of North Dakota, Grand Forks, ND (Dec. 2009)*
- 19.(O) "Using Molecules to Build Molecules: Template-directed Solid-state Synthesis and Fluorous Organocatalysis" Chu, Q. R. *Chemistry Department, University of North Dakota, Grand Forks, ND (Jan. 2009)*
- 18.(O) "Using Molecules to Build Molecules: Template-directed Solid-state Synthesis and Fluorous Organocatalysis" Chu, Q. R. *Center for Molecular Discovery, Boston University, Boston, MA (Dec. 2008)*
- 17.(O) "Architecture on a Nanoscale: Covalently Bonded Fibers and Tubes" Chu, Q. R. *Department of Chemistry, Louisiana State University, Baton Rouge, LA (Nov. 2008)*
- 16.(O) "Synthesis of Molecules and Materials via Reversible Bonding Strategies" Chu, Q. R. *Department of Chemistry, City College, City University of New York, New York, NY (Dec. 2007)*
- 15.(O) "Synthesis of Molecules and Materials via Reversible Bonding Strategies" Chu, Q. R. *Department of Chemistry, University at Albany, State University of New York, Albany, NY (Dec. 2007)*
- 14.(O) "Towards Shape-oriented Separation: Transport of Organic Cations through Fluorous Bulk Membrane" Chu, Q.; Curran, D. P. *234th ACS National Meeting & Exposition, Boston, MA (Aug. 2007)*
- 13.(P) "A) Using Molecules to Build Molecules; B) Active Transport of Organic Cations through Fluorous Bulk Membranes by Nanohosts" Chu, Q.; MacGillivray, L. R.; Curran, D. P. *234th ACS National Meeting & Exposition, Boston, MA (Aug. 2007)*
- 12.(P) "Synthesis, Characterization and Applications of Fluorous Hosts" Chu, Q.; Curran, D. P. *The 2nd International Symposium on Fluorous Technologies (ISoFT'07), Yokohama-Kamakura, Japan (Jul. 2007)*
- 11.(O) "Dynamic Mutation - A Novel Method for Crystal Structure Prediction" Chu, Q.; MacGillivray, L. R. *Midwest Organic Solid-State Chemistry Symposium XVII, Iowa City, IA (Jun. 2006)*
- 10.(O) "Computational Studies of Electronic Effects of Substituents within Photoreactive Molecular Assemblies Derived from the Solid State" Chu, Q.; Jensen, J. H.; MacGillivray, L. R. *Midwest Organic Solid-State Chemistry Symposium XVI, West Lafayette, IN (May 2005)*
- 9.(P) "Metal-Organic Hosts Constructed via Template-controlled Solid-state Synthesis" Chu, Q.; Hamilton, T. D.; MacGillivray, L. R. *Annual Meeting of the American Crystallographic Association, Orlando, FL (May 2005)*
- 8.(O) "Towards Generality in Template-controlled Reactivity: 'Template Switching' in Metal-Organic Solids" Chu, Q.; MacGillivray, L. R. *39th Midwest Regional Meeting of ACS, Manhattan, KS (Oct. 2004)*
- 7.(O) "Inorganic Salts That Function as Linear Templates by Directing the [2+2] Photodimerization in the Solid State" Chu, Q.; MacGillivray, L. R. *228th ACS National Meeting, Philadelphia, PA (Aug. 2004)*
- 6.(P) "Inorganic Salts That Function as Linear Templates by Directing Assembly and Reactivity of Olefins in the Solid State" Chu, Q.; MacGillivray, L. R. *XIIIth International Symposium on Supramolecular Chemistry, Notre Dame, IN (Jul. 2004)*

- 5.(O) “Directed Assembly and Reactivity of Olefins in the Solid State Using Silver Salts” Chu, Q.; MacGillivray, L. R. *Midwest Organic Solid-State Chemistry Symposium XV*, Carbondale, IL (Jun. **2004**)
- 4.(O) “Inorganic Salts That Function as Linear Templates by Directing the [2+2] Photodimerization in the Solid State” Chu, Q.; MacGillivray, L. R. *38th Midwest Regional Meeting of ACS, Columbia, MO* (Nov. **2003**)
- 3.(P) “Metal-Organic Squares Constructed *via* Linear Templates” Chu, Q.; MacGillivray, L. R. *39th IUPAC Congress, Ottawa, Canada* (Aug. **2003**)
- 2.(O) “A Metal-Organic Square Constructed Using a Linear Template” Chu, Q.; Papaefstathiou, G. S.; Hamilton, T. D.; MacGillivray, L. R. *XIVth Midwest Organic Solid-State Chemistry Symposium, Minneapolis, MN* (Jun. **2003**)
- 1.(O) “A Metal-Organic Square Constructed Using a Linear Template” Chu, Q.; MacGillivray, L. R. *225th ACS National Meeting, New Orleans, LA* (Mar. **2003**)

PROFESSIONAL AFFILIATIONS

- *Alpha Chi Sigma*: A Professional Chemistry Fraternity (Dec. 2003 - present)
- American Chemical Society (Sept. 2001 - present)
- American Crystallographic Association (Jun. 2004 - present)

COMMITTEE SERVICES

- Chemistry Department Lecture Committee (Aug. 2014 – Present)
- Chemistry Department Graduate Program Committee (Aug. 2014 – Present)
- Chemistry Department Seminar Grading Committee (Aug. 2013 – Present)
- Chemistry Department Graduate Admission Committee (Aug. 2009 - Jul. 2014)
- Chemistry Department Safety Committee (Aug. 2011 - Jul. 2012, Aug. 2015 – Jul. 2016)
- Chemistry Department Recoding Secretary (Jan. 2011 - Jun. 2011)
- UND Faculty Research Seed Grant Committee (Jan. 2012 - Dec. 2012)

RESEARCHERS AND STUDENTS MENTORED (POSITION)

Postdoctoral Research Scholars

Xiaodong Hou, PhD. *Oct. 2009 – Sept. 2014*
(Lab Director/Lecture, Environmental Analytical Research Laboratory, UND, ND)
 Julius N. Ngwendson, Ph.D. *Jun. 2009 – Aug. 2010*
(Faculty, Department of Chemistry, Normandale Community College, Bloomington, MN)

Graduate Students

Dominic Nkemngong *Aug. 2015 – Present*
 Houssein Amjaour *Jan. 2017 – Present*
 Rahul Shahni *Aug. 2015 – Present*
 Brent Kastern *Aug. 2014 – Present*
 Zijun Wang *Aug. 2013 – Dec. 2016*
(Scientist: Capacitor Sciences Inc. Menlo Park, CA)
 Zhihan Wang *Jun. 2012 – May 2017*
(Post-doc., University of California, Merced, CA)
 Rajiv K. Singh *Aug. 2009 – May 2012*
(Faculty., Southeast Kentucky Community & Technical College, KS)

Undergraduate Students

Austin Rebel	Jan 2017 – Present
Mark Scheuring	Jan 2017 – Present
Benjamin Nelson	Jan 2017 – Present
Tiffany Shui	May 2016 – Present
Micah Mabin	Apr. 2016 – Present
Jenna Puttkammer	Mar. 2016 – Present
Quintin Elliott (<i>PhD Student, Florida State U.</i>)	Jan. 2016 – Jul. 2017
Benjamin Miller (<i>Applying for Medical School</i>)	Feb. 2015 – May 2017
Jonathan Butz (<i>Scientist, Cargill, Inc.</i>)	May 2015 – Jan. 2017
David Seals (<i>Undergraduate Student at UND</i>)	Sept. 2014 – May 2015
Katelyn Randazzo (<i>PhD Student, Princeton U.</i>)	Feb. 2014 – Aug. 2016
Joseph Lee (<i>Applying for Medical School</i>)	May 2012 – Dec. 2015
Erin Wysocki (<i>Undergraduate Student at UND</i>)	May 2013 – Aug. 2014
Jennifer Schlak (<i>PhD Student, Southern Illinois U.</i>)	Jan. 2013 – Dec. 2013
Casey Oian (<i>PhD Student, Texas A&M U.</i>)	Mar. 2012 – Aug. 2013
Molly Overby (<i>Emergency Medical Technician in Minneapolis</i>)	Jun. 2011 – May. 2013
Nicole Larson (<i>Undergraduate Student at UND</i>)	Aug. 2012 – Dec. 2012
Matthew Schober (<i>Student at U. of Minnesota, Twin Cities</i>)	Feb. 2010 – Aug. 2012
Alys Seay (<i>Graduate Student, Union College</i>)	Sept. 2011 – Dec. 2011
Monty S. Bulzomi (<i>Student at U. of Minnesota, Twin Cities</i>)	Sept. 2009 – May 2010
Max Osipov (<i>PhD Student, Stanford U.</i>)	Jan. 2007 – May 2008
Chris Henry (<i>Student, Duke U.</i>)	May 2007 – Aug. 2007

SELECTED GRANT ACTIVITIES

The National Science Foundation Standard Grant Proposal (*To be submitted in fall 2017*)

Title: High-performance 3D Polymeric Materials via a Bio-inspired Approach

Agency: NSF - Macromolecular, Supramolecular and Nanochemistry (MSN)

Amount: \$375,000

Total Award Period Covered: 07/01/2018 - 6/30/2021

ND Research Cluster of Sustainable Materials Science (*Funded*)

Title: Innovative and Strategic Program Initiatives for Research and Education-North Dakota (INSPIRE-ND)

Agency: NSF

Amount: \$327,500 (Total \$20,000,000)

PIs: Drs. Philip Boudjouk, Sheri L. Anderson, Mark R. Hoffman, Phyllis Johnson

Total Award Period Covered: 08/01/2014 - 7/31/2019

Doctoral New Investigator Awards (*Funded*)

Title: Novel Polymeric Architectures from Monomers with Multiple Reactive Centers

Agency: American Chemical Society (ACS) and Petroleum Research Foundation (PRF)

Amount: \$100,000 (Direct Cost)

Total Award Period Covered: 01/01/2013 - 8/31/2015

Sustainable Materials Science Supplemental Award (*Funded*)

Title: Construction of Nano-structures Using Symmetric Molecules as Building Blocks

Agency: ND EPSCoR SMS Program

Amount: \$50,000 (Direct Cost for Chu group)

Total Award Period Covered: 10/01/2013 - 8/15/2014

Sustainable Materials Science Developmental Award (*Funded*)

Title: Construction of Nano-structures Using Symmetric Molecules as Building Blocks

Agency: ND EPSCoR SMS Program

Amount: \$27,566

Total Award Period Covered: 01/01/2013 - 8/15/2013

Advanced Undergraduate Research Awards (*Funded*)

Title: Construction of Novel Organic Nanotubes with Potential Green Energy Applications

Agency: ND EPSCoR AURA Program

Student: Jenna Puttkammer

Amount: \$9,000

Total Award Period Covered: 05/16/2016 - 04/30/2017

Research Experience for Undergraduates Program (*Funded*)

Title: Black Lights as a Facile Irradiation Source for Photoreactions

Agency: ND EPSCoR REU Program

Student: Quintin Elliott

Amount: \$5,000

Total Award Period Covered: 06/01/2016 – 05/31/2017

UND Faculty Research Seed Money Awards (*Funded*)

Title: Novel Composite Nanofibers for Fuel-Efficient Transportation

Agency: Research Development and Compliance, UND

Amount: \$20,000

Total Award Period Covered: 03/01/2011 - 02/28/2013

Advanced Undergraduate Research Awards (*Funded*)

Title: Construction of Novel Organic Nanotubes with Potential Green Energy Applications

Agency: ND EPSCoR AURA Program

Amount: \$7,975

Total Award Period Covered: 05/16/2013 - 11/29/2013

UND Seed Grant for Collaborative Research (*Funded*)

Title: From Flue Exhaust to Spandex: Carbon Dioxide Capture and Conversion into Plastic

Agency: Division of Research and Economic Development, UND

Amount: \$25, 000 (74,500 in total, shared with Dr. M. Cavalli and Dr. H. Tsang)

Total Award Period Covered: 01/09/2012 - 12/31/2012

Advanced Undergraduate Research Awards (*Funded*)

Title: Construction of Novel Organic Nanotubes with Potential Green Energy Applications

Agency: ND EPSCoR AURA Program

Amount: \$5,500

Total Award Period Covered: 05/16/2012 - 8/10/2012

UND Startup (*Funded*)

Title: Construction of Covalently Bonded Nano-Architectures

Agency: ND EPSCoR New Faculty Startup Program

Amount: \$275,000

Total Award Period Covered: 09/01/2009 - 08/31/2011