

## Christopher P. Jaroniec

## Curriculum Vitae

Department of Chemistry  
The Ohio State University  
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### Education

- 1997-2003 Ph.D., Physical Chemistry, Massachusetts Institute of Technology  
Advisor: Prof. Robert G. Griffin  
Thesis: "Solid state nuclear magnetic resonance methodology and applications to structure determination of peptides, proteins, and amyloid fibrils"
- 1994-1997 B.S., Chemistry, *summa cum laude*, Kent State University  
Advisor: Prof. Roger K. Gilpin  
Honors Thesis: "Surface and structural properties of silica-based amide bonded phases"

### Professional Experience

- 2006- Assistant Professor of Chemistry  
Department of Chemistry, The Ohio State University
- 2003-2006 Damon Runyon Cancer Research Foundation Postdoctoral Fellow  
Laboratory of Chemical Physics, NIDDK, National Institutes of Health  
Advisor: Dr. Ad Bax

### Honors and Awards

- 2006 Royal Society North America Incoming Short Visit Award
- 2003-2006 Damon Runyon Cancer Research Foundation Postdoctoral Fellowship
- 2003 Jane Coffin Childs Memorial Fund for Medical Research Fellowship (declined)
- 1997-2000 National Science Foundation Graduate Research Fellowship
- 1998 Graduate Teaching Award, Massachusetts Institute of Technology
- 1997 Phi Beta Kappa
- 1997 Superior Scholarship Award, Kent State University
- 1996 American Chemical Society Undergraduate Award in Analytical Chemistry
- 1996 Poster Award, 20<sup>th</sup> International Symposium on High Performance Liquid Phase Separations, San Francisco, CA
- 1994 Merck Award, Kent State University
- 1994 CRC Press Freshman Award, Kent State University
- 1993-1997 Honors Scholarship, Honors College, Kent State University

## Professional Activities

- Member, *American Chemical Society*
- Reviewer for *Journal of the American Chemical Society*, *Journal of Biomolecular NMR*, *Journal of Physical Chemistry*, *Membrane Molecular Biology*, *Nature Structural & Molecular Biology*, *Proceedings of the National Academy of Sciences*
- Grant reviewer for *National Science Foundation*

## Publications

27. **C.P. Jaroniec**, J.D. Kaufman, S.J. Stahl, M. Viard, R. Blumenthal, P.T. Wingfield, A. Bax, "Structure and dynamics of micelle-associated human immunodeficiency virus gp41 fusion domain," *Biochemistry* 2005, 44, 16167-16180.
26. **C.P. Jaroniec**, J. Boisbouvier, I. Tworowska, E. P. Nikonowicz, A. Bax, "Accurate measurement of  $^{15}\text{N}$ - $^{13}\text{C}$  residual dipolar couplings in nucleic acids," *J. Biomol. NMR* 2005, 31, 231-241.
25. **C.P. Jaroniec**, T.S. Ulmer, A. Bax, "Quantitative J correlation methods for the accurate measurement of  $^{13}\text{C}'$ - $^{13}\text{C}^{\alpha}$  dipolar couplings in proteins," *J. Biomol. NMR* 2004, 30, 181-194.
24. **C.P. Jaroniec**, C.E. MacPhee, V.S. Bajaj, M.T. McMahon, C.M. Dobson, R.G. Griffin, "High resolution molecular structure of a peptide in an amyloid fibril determined by magic angle spinning NMR spectroscopy," *Proc. Natl. Acad. Sci. USA* 2004, 101, 711-716.
23. V. Ladizhansky, **C.P. Jaroniec**, A. Diehl, H. Oschkinat, R.G. Griffin, "Measurement of multiple  $\psi$  torsion angles in U- $^{13}\text{C}$ ,  $^{15}\text{N}$  labeled  $\alpha$ -spectrin SH3 domain using 3D  $^{15}\text{N}$ - $^{13}\text{C}$ - $^{13}\text{C}$ - $^{15}\text{N}$  MAS dipolar-chemical shift correlation spectroscopy," *J. Am. Chem. Soc.* 2003, 125, 6827-6833.
22. **C.P. Jaroniec**, C.E. MacPhee, N.S. Astrof, C.M. Dobson, R.G. Griffin, "Molecular conformation of a peptide fragment of transthyretin in an amyloid fibril," *Proc. Natl. Acad. Sci. USA* 2002, 99, 16748-16753.
21. C.M. Rienstra, M. Hohwy, L.J. Mueller, **C.P. Jaroniec**, B. Reif, R.G. Griffin, "Determination of multiple torsion-angle constraints in U- $^{13}\text{C}$ ,  $^{15}\text{N}$ -labeled peptides: 3D  $^1\text{H}$ - $^{15}\text{N}$ - $^{13}\text{C}$ - $^1\text{H}$  dipolar-chemical shift NMR spectroscopy in rotating solids," *J. Am. Chem. Soc.* 2002, 124, 11908-11922.
20. **C.P. Jaroniec**, C. Filip, R.G. Griffin, "3D TEDOR NMR experiments for the simultaneous measurement of multiple carbon-nitrogen distances in uniformly  $^{13}\text{C}$ ,  $^{15}\text{N}$  labeled solids," *J. Am. Chem. Soc.* 2002, 124, 10728-10742.
19. C.M. Rienstra, L. Tucker-Kellogg, **C.P. Jaroniec**, M. Hohwy, B. Reif, M.T. McMahon, B. Tidor, T. Lozano-Perez, R.G. Griffin, "*De novo* determination of peptide structure with solid-state magic-angle spinning NMR spectroscopy," *Proc. Natl. Acad. Sci. USA* 2002, 99, 10260-10265.
18. A.T. Petkova, M. Hatanaka, **C.P. Jaroniec**, J.G. Hu, M. Belenky, M. Verhoeven, J. Lugtenburg, R.G. Griffin, J. Herzfeld, "Tryptophan interactions in bacteriorhodopsin: A heteronuclear solid-state NMR study," *Biochemistry* 2002, 41, 2429-2437.

17. J.C. Lansing, M. Hohwy, **C.P. Jaroniec**, A.F.L. Creemers, J. Lugtenburg, J. Herzfeld, R.G. Griffin, "Chromophore distortions in the bacteriorhodopsin photocycle: Evolution of the H-C14-C15-H dihedral angle measured by solid-state NMR," *Biochemistry* 2002, 41, 431-438.
16. **C.P. Jaroniec**, J.C. Lansing, B.A. Tounge, M. Belenky, J. Herzfeld, R.G. Griffin, "Measurement of dipolar couplings in a uniformly  $^{13}\text{C}$ ,  $^{15}\text{N}$  labeled membrane protein: Distances between the Schiff base and aspartic acids in the active site of bacteriorhodopsin," *J. Am. Chem. Soc.* 2001, 123, 12929-12930.
15. **C.P. Jaroniec**, B.A. Tounge, J. Herzfeld, R.G. Griffin, "Accurate  $^{13}\text{C}$ - $^{15}\text{N}$  distance measurements in uniformly  $^{13}\text{C}$ ,  $^{15}\text{N}$ -labeled peptides," In "*Perspectives on Solid State NMR in Biology*," S. Kiihne, H.J.M. de Groot, (Eds.), Kluwer, Dordrecht, 2001, 15-21.
14. B. Reif, **C.P. Jaroniec**, C.M. Rienstra, M. Hohwy, R.G. Griffin, " $^1\text{H}$ - $^1\text{H}$  MAS correlation spectroscopy and distance measurements in a deuterated peptide," *J. Magn. Reson.* 2001, 151, 320-327.
13. **C.P. Jaroniec**, B.A. Tounge, J. Herzfeld, R.G. Griffin, "Frequency selective heteronuclear dipolar recoupling in rotating solids: Accurate  $^{13}\text{C}$ - $^{15}\text{N}$  distance measurements in uniformly  $^{13}\text{C}$ ,  $^{15}\text{N}$ -labeled peptides," *J. Am. Chem. Soc.* 2001, 123, 3507-3519.
12. **C.P. Jaroniec**, B.A. Tounge, C.M. Rienstra, J. Herzfeld, R.G. Griffin, "Recoupling of heteronuclear dipolar interactions with rotational-echo double-resonance at high magic-angle spinning frequencies," *J. Magn. Reson.* 2000, 146, 132-139.
11. B. Reif, M. Hohwy, **C.P. Jaroniec**, C.M. Rienstra, R.G. Griffin, "NH-NH vector correlation in peptides by solid-state NMR," *J. Magn. Reson.* 2000, 145, 132-141.
10. M. Hohwy, **C.P. Jaroniec**, B. Reif, C.M. Rienstra, R.G. Griffin, "Local structure and relaxation in solid-state NMR: Accurate measurement of amide N-H bond lengths and H-N-H bond angles," *J. Am. Chem. Soc.* 2000, 122, 3218-3219.
9. **C.P. Jaroniec**, B.A. Tounge, C.M. Rienstra, J. Herzfeld, R.G. Griffin, "Measurement of  $^{13}\text{C}$ - $^{15}\text{N}$  distances in uniformly  $^{13}\text{C}$  labeled biomolecules: J-decoupled REDOR," *J. Am. Chem. Soc.* 1999, 121, 10237-10238.
8. M. Hohwy, C.M. Rienstra, **C.P. Jaroniec**, R.G. Griffin, "Fivefold symmetric homonuclear dipolar recoupling in rotating solids: Application to double quantum spectroscopy," *J. Chem. Phys.* 1999, 110, 7983-7992.
7. M. Jaroniec, **C.P. Jaroniec**, M. Kruk, R. Ryoo, "Adsorption and thermogravimetric methods for monitoring surface and structural changes in ordered mesoporous silicas induced by their chemical modification," *Adsorption* 1999, 5, 313-317.
6. M. Jaroniec, M. Kruk, **C.P. Jaroniec**, A. Sayari, "Modification of surface and structural properties of ordered mesoporous silicates," *Adsorption* 1999, 5, 39-45.
5. **C.P. Jaroniec**, M. Kruk, M. Jaroniec, A. Sayari, "Tailoring surface and structural properties of MCM-41 silicas by bonding organosilanes," *J. Phys. Chem. B* 1998, 102, 5503-5510.
4. Y.D. Glinka, **C.P. Jaroniec**, M. Jaroniec, "Studies of surface properties of disperse silica and alumina by luminescence measurements and nitrogen adsorption," *J. Colloid Interface Sci.* 1998, 201, 210-219.
3. **C.P. Jaroniec**, R.K. Gilpin, M. Jaroniec, "Comparative studies of chromatographic

- properties of silica-based amide bonded phases under hydro-organic conditions,” *J. Chromatogr. A* 1998, 797, 103-110.
2. **C.P. Jaroniec**, M. Jaroniec, M. Kruk, “Comparative studies of structural and surface properties of porous inorganic oxides used in liquid chromatography,” *J. Chromatogr. A* 1998, 797, 93-102.
  1. **C.P. Jaroniec**, R.K. Gilpin, M. Jaroniec, “Adsorption and thermogravimetric studies of silica-based amide bonded phases,” *J. Phys. Chem. B* 1997, 101, 6861-6866.

### Invited Conference Presentations and Lectures

- **Damon Runyon Cancer Research Foundation Retreat**, West Dennis, MA, Sept. 2005.  
“Structure and dynamics of micelle-associated HIV-1 gp41 fusion domain”
- **Washington Area NMR Group Meeting**, NIH, Bethesda, MD, May 2005.  
“Accurate measurement of  $^{13}\text{C}$ - $^{13}\text{C}$  and  $^{15}\text{N}$ - $^{13}\text{C}$  residual dipolar couplings in proteins and nucleic acids”
- **46<sup>th</sup> Experimental NMR Conference**, Providence, RI, April 2005.  
“Accurate measurement of  $^{13}\text{C}$ - $^{13}\text{C}$  and  $^{15}\text{N}$ - $^{13}\text{C}$  residual dipolar couplings in proteins and nucleic acids”
- **43<sup>rd</sup> Experimental NMR Conference**, Asilomar, CA, April 2002.  
“Three-dimensional TEDOR NMR experiments for the simultaneous measurement of multiple  $^{13}\text{C}$ - $^{15}\text{N}$  distances in uniformly  $^{13}\text{C}$ ,  $^{15}\text{N}$  labeled solids”
- **223<sup>rd</sup> American Chemical Society National Meeting**, Orlando, FL, April 2002.  
“Solid state NMR spectroscopy of amyloid fibrils formed by transthyretin 105-115”
- **42<sup>nd</sup> Experimental NMR Conference**, Orlando, FL, March 2001.  
“Heteronuclear distance measurements in uniformly  $^{13}\text{C}$ ,  $^{15}\text{N}$  labeled peptides”
- **Kent State University**, Department of Chemistry, October 13, 2005  
“NMR structural studies of amyloid and fusion peptides”
- **Universite Pierre et Marie Curie (Universite Paris VI), France**, Laboratoire Structure et Fonction des Molecules Bioactives, September 13, 2005.  
“NMR structural studies of amyloid and fusion peptides”
- **Ecole Normale Supérieure de Lyon, France**, Laboratoire de Chimie, September 2, 2004.  
“High-resolution structural studies of membrane peptides and proteins using residual dipolar couplings”
- **Massachusetts Institute of Technology**, Department of Chemistry, October 29, 2002.  
“Molecular conformation of a peptide in an amyloid fibril”
- **National Institutes of Health**, Laboratory of Chemical Physics, March 27, 2002.  
“Structure determination of U- $^{13}\text{C}$ ,  $^{15}\text{N}$  labeled peptides and proteins using high-resolution solid-state NMR: Methods and applications”

## Teaching Activities

- **Nuclear Magnetic Resonance Spectroscopy** (Chemistry 824); 25 graduate students.  
The Ohio State University  
Course Instructor, Spring 2006
- **Thermodynamics and Kinetics** (Chemistry 5.60); about 30 students per semester.  
Massachusetts Institute of Technology, Professors Mounqi G. Bawendi, Bruce Tidor, Robert J. Silbey, and John M. Deutch  
Graduate Student Instructor, Fall 1997 and Spring 1998