

Curriculum Vitae Jianhua Ren

Department of Chemistry, University of the Pacific, Stockton, CA 95211
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Academic Positions

2013-present: Professor, Department of Chemistry, University of the Pacific
2008-2013: Associate Professor, Department of Chemistry, University of the Pacific
2002-2008: Assistant Professor, Department of Chemistry, University of the Pacific
1986-1991: Instructor of Chemistry, Beijing Normal University, Beijing, China

Education and Training

Postdoctoral Scholar, Stanford University, 1999-2002
Ph.D., Chemistry, Purdue University, 1999
M.S., Chemistry, Auburn University, 1994
B.S., Chemistry, Beijing Normal University, Beijing, China, 1986

Activity/other Appointment

- Guest Faculty, The Molecular Foundry at Lawrence Berkeley National Laboratory, January 2011-present
- Visiting Professor, The Molecular Foundry at Lawrence Berkeley National Laboratory (Sabbatical Leave, in collaboration with Dr. Ron Zuckermann), September-December 2015
- Visiting Professor, Rowland Institute at Harvard (Sabbatical Leave, in collaboration with Dr. Joel Parks), October-December 2009
- Visiting Scholar, Stanford University, August 2002-2004
- Visiting Scientist, National Institute of Standards and Technology (NIST, in collaboration with Dr. Steven Stein), Summer 2003 and Summer 2004

Research Interests

Mass spectrometry and computational studies of the structures, chemical properties and reactivity of organic and biological molecules and ions, including small organic compounds, peptides and peptoids; proteins; Synthesis of peptide and peptoids; Synthesis of magnetic beads.

Current Research Projects

1. Mass spectrometry analysis of biologically relevant organic compounds
2. Conformational effects on the gas-phase acid-base properties of peptides
3. Conformations of gas-phase peptides by IRMPD spectroscopy
3. Fragmentation patterns and mechanism studies of charged peptoids
4. Peptide and peptoid synthesis
5. Sequence of peptides and small proteins by mass spectrometry techniques
6. Synthesis of magnetic nano-particles

Postdoctoral Fellows and Students Mentored

- Two postdoctoral scholars
- Five Ph.D. students
- Five M.S. students
- Thirty nine undergraduate research students
- Six High School summer research students

Professional Services for the Scientific Community

- Serve as an oral session discussion chair at the annual American Society for Mass Spectrometry (ASMS) conference, 2016
- Served as a co-organizer of the Metal Ion Coordination Chemistry Workshop for the American Society for Mass Spectrometry (ASMS), 2012-2013
- Served as a member and Chair of the American Society for Mass Spectrometry (ASMS) Sanibel Conference Organization Committee, 2009-2012
- Served as a committee member of the American Society for Mass Spectrometry (ASMS) education committee, 2006-2008
- Served as a judge for the ASMS Undergraduate Poster Competition, 2013
- Served as a discussion leader at the 35th Reaction Mechanism Conference, June 2014
- Served as a session chair at the Conference on Ion Chemistry and Mass Spectrometry, Lake Arrowhead, CA, 2006, 2010, 2011.
- Served on the NSF Proposal Panel Reviews
- Serve as a peer reviewer for ACS-PRF grant proposals
- Serve as a peer reviewer for NSF grant proposals
- Reviewed a chapter of the textbook by Janice Smith, *Organic Chemistry*, First Edition, McGraw-Hill Higher Education, June 2004
- Served as a Juror for the 17th annual CSU Student Research Competition, May 3, 2003
- Peer-reviewer for the following journals:
Journal of the American Chemical Society; Journal of Physical Chemistry; Journal of Physical Organic Chemistry; Journal of Chemical Physics; Journal of Mass Spectrometry; International Journal of Mass Spectrometry; Rapid Communications in Mass Spectrometry; Journal of the American Society for Mass Spectrometry; Journal of Biomolecular Structure and Dynamics; Journal of Peptide Synthesis; Biopolymers; Organic letters; Analytical Methods; European Journal of Chemistry; SpringerPlus; Steroids

Services for the College and the University

- Member of the Academic Affairs Committee (fall 2015-spring 2018)
- Member of the University Promotions and Tenure Committee (fall 2014-spring 2017)
- Member of the College Scholarship Fund Committee (fall 2014-spring 2017)
- Member and Chair of the College of the Pacific (COP) Council (Fall 2011-Spring 2014)
Chair, 2013-2014
- Member of the College Courses & Standards Committee (Fall 2004-Spring 2007)
- Member of the University Academic Planning & Development Committee (CAPD) (Fall 2007-Spring 2010)
- Member of the International Programs and Services (IPS) Committee (Fall 2010-spring 2013)

Services for the Chemistry Department

- Chair of the faculty promotion committee, Fall 2015
- Chair and member of the Faculty Development Leave review committee, Spring 2013
- Member of the faculty tenure & promotion committee, 2012
- Chair of the faculty three-year review committee, 2012
- Chair of the faculty tenure committee, 2010
- Chair of the Ph.D. dissertation committee for two students, 2011, 2012
- Chair of the Master's thesis committee for four students, 2005-2012
- Member of the Ph.D. graduate study/dissertation, 2003-

- Member of the Ph.D. qualifying exam committee, 2003-
- Member of the M. S. thesis committee, 2002-
- Faculty advisor for Pre-Optometry Student Club, 2011-present
- Primary contact for chemistry safety building evacuation, since 2012
- Hosted the Profile Day, 2013, 2014, 2015
- In charging of the maintenance (with Professor Sparkman) of the department Mass Spectrometry Facility

Honors and Awards

2014	Faculty Research Lecture Award, University of the Pacific
1998-1999	Purdue Research Foundation Graduate Fellowship
1997	Herbert C. Brown Graduate Research Award, Purdue University
1983-1985	Outstanding Undergraduate Student Awards, Beijing Normal University, 1983, 1984, 1985

Affiliations

American Chemical Society, since 1993
American Society for Mass Spectrometry, since 1995
Iota Sigma Pi Honorary Chemical Society
Phi Lambda Upsilon Honorary Chemical Society
Alpha Chi Sigma Fraternity

External grants

1. NSF (CHE-1301505), "Conformational effects on the gas-phase acidities of biopolymers", PI, \$351,500, September 15, 2013-September 30, 2016.
2. NSF (CHE-1301505-001), Supplemental fund for "Conformational effects on the gas-phase acidities of biopolymers-Conducting infrared multiphoton dissociation (IRMPD) experiments at the FELIX Facility, Radboud University Nijmegen, The Netherlands", PI, \$26,790, August 3, 2015-September 30, 2016.
3. NSF (MRI-1531417), "Acquisition of Mass Spectrometry Technology for Teaching and Research", Co-PI (Craig Vierra as the PI), \$579,135, August 15, 2015-July 31, 2018
4. NSF Subaward (V14-318-01) "Predicting analyte response in negative ion electrospray ionization" In collaboration with Dr. Christine Hughey, \$5167, June 1, 2014-May 30, 2015
5. NSF (CHE-0749737), "Helix conformational effects on the acidities of helical peptides", PI, \$330,000, August 1, 2008-July 31, 2012.
6. ACS-PRF (SRF), "H/D exchange properties of cysteine-polyalanine peptides", in collaboration with Dr. Scott Russell, California State University (CSU) at Stanislaus, PI, \$8,000, Summer 2007.
7. ACS-PRF(G), "Investigations of Helix Macro-Dipolar Effects on the Gas-Phase Acidity of Helical Peptides", PI, \$35,000, March 2006-August 2008.

National and international laboratory user grants (or beam-time grants)

(The user grant supports the users to conduct research and to use the expertise at the host laboratory)

1. FELIX International Facility, Radboud University, The Netherlands, July 2014 and December 2015
2. Molecular Foundry User Facility at the Lawrence Berkeley National Laboratory (LBNL), 2010-present.

Internal grants

1. Hoefer Prize for Student-Faculty Research with Alec Follmer' 14, "Gas-Phase Acidity and Basicity of Organic Molecules and Small Peptides", \$5000, summer 2014
2. SAAG, Pacific "Construction of a DESI ion source", \$3000, spring 2012
3. Pacific Fund Grant, "Research on Peptide Mimicking Polymers", \$1800, 2011
4. Pacific Fund Grant, "Interfacing with a Cluster Computing Environment", \$4900, Mike McCallum, Jerry Tsai, and Jianhua Ren, 2009
5. Nanotechnology Research Grants, Pacific, "Fabrication and characterization of nano-scale magnetic beads", \$5,000, June 2007-June 2008
6. SEED, Pacific, "Identification of Aryl Hydrocarbon Nuclear Translocator Interacting Proteins Using Mass Spectrometry", \$5,000, Spring, 2005-2006
7. SAAG, Pacific, "Proton Affinity of Poly-Alanine Based Peptides, \$2500, Fall 2004
8. SAAG, Pacific Charge Influences on Acidities of Amino Acids, \$2000, Fall 2002

Peer-Reviewed Publications (* corresponding author)

1. Jianhua Ren*; Yuan Tian; Ekram Hossain; Michael Connolly, "Fragmentation patterns and mechanisms of singly and doubly protonated peptoids studied by collision induced dissociation", *Journal of the American Society for Mass Spectrometry (JASMS)*, **2016**, in press
2. Jianhua Ren*; Yuan Tian; Ekram Hossain; Kavneet Bindra; Michael Connolly; Ronald Zuckermann; Jianhua Ren, "Fragmentation patterns and mechanisms of singly and doubly protonated peptoids studied by collision induced dissociation, part II", in preparation and to be submitted to *Journal of the American Society for Mass Spectrometry (JASMS)* in 2016
3. Patrick Batoon; Jianhua Ren*, "Proton affinity determination of acetylated dipeptides containing Lysine or its non-proteinogenic homologs as a basic probe", in preparation and to be submitted to *Journal of Physical Chemistry (JPC)* in 2016
4. Patrick Batoon; Jianhua Ren*; Jos Oomens, "Conformational determination of isomeric dipeptides AlaDap and Dapala by IRMPD spectroscopy and theoretical modeling", in preparation and to be submitted to *Journal of the Journal of Physical Chemistry (JPC)* in 2016
5. Patrick Batoon; Jianhua Ren*, "Proton Affinity of Dipeptides Containing Alanine and Diaminobutyric Acid", invited article for Veronica Bierbaum Honor Issue *International Journal of Mass Spectrometry (IJMS)*, **2015**, 378, 151-159.
6. Bogdan Bogdanov, Xiaoning Zhao, David B. Robinson and Jianhua Ren*, "Electron capture dissociation studies of the fragmentation patterns of doubly protonated and mixed protonated-sodiated peptoids", *Journal of the American Society for Mass Spectrometry (JASMS)*, **2014**, 25, 1202-1216
7. Steven Wu*, Fang Wang, Tiffany Thiel, Andrew Clausen, David Semin, Jianhua Ren, "Unusual autoxidation of benzylamine moiety in harmaceutical compound catalyzed by zero oxidation state transition metal under dissolution conditions", *Journal of Pharmaceutical and Biomedical Analysis*, submitted in **2014**
8. Jianhua Ren*, Ashish Sawhney, Yuan Tian, Bhupinder Padda, Patrick Batoon "Determination of the Gas-Phase Acidities of Oligopeptides", *Journal of Visualized Experiments (JoVE)*, e4348, 76, **2013**.
9. Jianhua Ren*, "Shaping the Properties of Peptides: Helix Conformational Effects on the Acidities of Helical Peptides", *International Innovation*, November **2012**, 98-100.
10. Jialin Shen and Jianhua Ren*, "Gas Phase Acidity of a Cysteine Residue in Small Oligopeptides", invited article for Alex Harrison Honor Issue *International Journal of Mass Spectrometry (IJMS)*, **2012**, 316-318, 147-156.
11. Kiran Kumar Morishetti, Scott C. Russell, Xiaoning Zhao, David B. Robinson and Jianhua Ren*, "Tandem Mass Spectrometry Studies of Protonated and Alkali Metalated Peptoids: Enhanced

- Sequence Coverage by Metal Cation Addition”, *International Journal of Mass Spectrometry (IJMS)*, **2011**, 308, 98-108.
12. Kiran Kumar Morishetti, Prabhakar Sripadi, Vairamani Mariappanadar and Jianhua Ren*, “Generation and Characterization of Distonic Dehydrophenoxide Radical Anions under Electrospray and Atmospheric Pressure Chemical Ionizations”, *International Journal of Mass Spectrometry (IJMS)*, **2011**, 299, 169-177.
 13. Xiangguo Shi, Jianhua Ren and Joel H. Parks* “Aldehyde Complexes with Protonated Peptides in Gas Phase”, *Journal of Physical Chemistry (JPC) B*, **2011**, 115, 11183-11192.
 14. Sumit Mukherjee and Jianhua Ren*, “Gas-Phase Acid-Base Properties of Melamine and Cyanuric Acid”, *Journal of the American Society for Mass Spectrometry (JASMS)*, **2010**, 21, 1720-1729.
 15. Kiran Kumar morishetti, Betty De Suan Huang, Jessica Marney Yates, and Jianhua Ren*, “Gas-Phase Acidities of Cysteine-Polyglycine Peptides: The Effect of the Cysteine Position”, *Journal of the American Society for Mass Spectrometry (JASMS)*, **2010**, 21, 603-614.
 16. Jianhua Ren*, John P. Tan and Robert T. Harper, “Gas-Phase Acidities of the Cysteine-Polyalanine Peptides I: A_{3,4}CSH and HSCA_{3,4}”, *Journal of Physical Chemistry (JPC) A*, **2009**, 113, 10903-10912.
 17. Silvy Oommachen, Thomas Chun, Jianhua Ren, and C. Michael McCallum*, “Stabilizing helical peptides with negative polarity or charge: capping with cysteine”, *Journal of Physical Chemistry (JPC) B*, **2008**, 112, 5702-5709.
 18. John Tan and Jianhua Ren*, “Determination of the Gas-Phase Acidities of Cysteine-Polyalanine Peptides Using the Extended Kinetic Method”, *Journal of the American Society for Mass Spectrometry (JASMS)*, **2007**, 18, 188-194
 19. Jianhua Ren*, “Polar Group Enhanced Gas-Phase Acidities of Carboxylic Acids: An Investigation of Intramolecular Electrostatic Interaction’ Kinetic Method,” *Journal of Physical Chemistry (JPC) A*, **2006**, 110, 13405-13411.
 20. Jianhua Ren* and Chirag G. Patel, “Determination of the Gas-Phase Acidity of Methylthioacetic Acid Using the Cooks’ Kinetic Method,” *Journal of the American Society for Mass Spectrometry (JASMS)*, **2005**, 16, 535-541.
 21. Jianhua Ren and John I. Brauman*, “Dynamics of Competitive Reactions: Endothermic Proton Transfer and Exothermic Substitution,” *Journal of the American Chemical Society (JACS)*, **2004**, 126, 2640-2646
 22. Jianhua Ren and John I. Brauman*, “Energy Deposition in S_N2 Reaction Products and Kinetic Energy Effects on Reactivity,” *Journal of Physical Chemistry (JPC) A* **2002**, 106, 3804.
 23. Jianhua Ren*, Christopher J. Cramer and Robert R. Squires*, “Superacidity and Superelectrophilicity of BF₃-Carbonyl Complexes,” *Journal of the American Chemical Society (JACS)*, **1999**, 121, 2633.
 24. Jianhua Ren, Derek B. Workman, Robert R. Squires*, “Gas-Phase Negative Ion Chemistry of Lewis Acid-Base Complexes,” *Journal of the American Chemical Society (JACS)*, **1998**, 120, 10511.
 25. Jianhua Ren, Derek B. Workman, Robert R. Squires*, “Enhanced α -CH Acidity and Reactivity of Lewis Acid-Base Complexes in the Gas Phase,” *Angewandte Chemie International Edition*, **1997**, 36, 2230.
 26. Brian E. Love*, Jianhua Ren, “Synthesis of Camphor-Based Chiral Quinolines,” *Synthetic Communications*, **1995**, 25, 73.
 27. Brian E. Love*, Jianhua Ren, “Synthesis of Sterically Hindered Imines,” *Journal of Organic Chemistry (JOC)*, **1993**, 58, 5556.

Conference Orals and Posters Presented by the Ren's Research Group recent 2 years

1. Patrick Batoon and Jianhua Ren, oral presentation "Conformations and proton affinities of nonproteinogenic oligopeptides studied by MS, IRMPD, and computational methods", 2016 Conference on Ion Chemistry and Mass Spectrometry, UCLA Conference Center, Lake Arrowhead, California, January 15–17, **2016**
2. Zachary Buen and Jianhua Ren, "Solvent and pressure effects on the gas-phase acidity of small molecules", 2016 Conference on Ion Chemistry and Mass Spectrometry, UCLA Conference Center, Lake Arrowhead, California, January 15–17, **2016**
3. Ekram Hossain and Jianhua Ren, "Cysteine and disulfide bond: magic of N-terminus", 2016 Conference on Ion Chemistry and Mass Spectrometry, UCLA Conference Center, Lake Arrowhead, California, January 15–17, **2016**
4. Jianhua Ren; Yuan Tian; Ekram Hossain; Michael Connolly; Ronald Zuckermann, "Fragmentation Patterns and Mechanisms of Singly and Doubly Protonated Peptoids", 9th Peptoid Summit, Lawrence Berkeley National Laboratory, Berkeley, CA, August 6-7, **2015**
5. Ekram Hossain; Jianhua Ren, " Li^+/Li^+ and Li^+/H^+ Multicharged Peptoid Fragmentation under Tandem Mass Spectrometry Conditions", 9th Peptoid Summit, Lawrence Berkeley National Laboratory, Berkeley, CA, August 6-7, **2015**
6. Patrick Henry Batoon, Jos Oomens, Jianhua Ren, "Proton affinity determination and IRMPD spectroscopy of oligopeptides containing non-proteinogenic amino acids", 63st ASMS Conference on Mass Spectrometry and Allied Topics, St. Louis, Missouri, May 31-June 4, **2015**
7. Ekram Hossain, Jianhua Ren, " Li^+/Li^+ and Li^+/H^+ Multicharged Peptoid Fragmentation under CID Conditions", 63st ASMS Conference on Mass Spectrometry and Allied Topics, St. Louis, Missouri, May 31-June 4, **2015**
8. Zachary Buen, Patrick Henry Batoon, Alec Follmer, Bhupinder Padder, Jianhua Ren, "Determination of Gas-Phase Acidity for Biologically Active Organic Compounds", 63st ASMS Conference on Mass Spectrometry and Allied Topics, St. Louis, Missouri, May 31-June 4, 2015
9. Patrick Batoon, Jos Oomens, and Jianhua Ren, "Probing the conformations of charged oligopeptides by ion chemistry and IRMPD spectroscopy", Gordon Research Conference on Gaseous Ions: Structures, Energetics and Reactions, Galveston, TX, February 22-27, **2015**
10. Patrick Batoon and Jianhua Ren, oral presentation "Understanding conformational effects on proton affinity of peptides containing lysine and its unnatural homologs", 2015 Conference on Ion Chemistry and Mass Spectrometry, UCLA Conference Center, Lake Arrowhead, California, January 16–18, **2015**
11. Ekram Hossain and Jianhua Ren, poster "Biopolymer fragmentation: metal ion vs. proton as charge carrier", 2015 Conference on Ion Chemistry and Mass Spectrometry, UCLA Conference Center, Lake Arrowhead, California, January 16–18, **2015**
12. Zachary, Buen, Patrick Batoon, Bhupinder Padda, Alec Follmer and Jianhua Ren, poster "Determination of gas-phase acidity for biologically active organic compounds", 2015 Conference on Ion Chemistry and Mass Spectrometry, UCLA Conference Center, Lake Arrowhead, California, January 16–18, **2015**
13. Dale Dong and Jianhua Ren, poster "Gas phase acidity and protein affinity of selected vitamin molecules", 2015 Conference on Ion Chemistry and Mass Spectrometry, UCLA Conference Center, Lake Arrowhead, California, January 16–18, **2015**
14. Jianhua Ren (oral presentation); Patrick Batoon, "Determination of the gas-phase acidity and basicity of oligopeptides by mass spectrometry", 248th National Meeting of the American Chemical Society, San Francisco, CA, August 10-14, **2014**.
15. Patrick Batoon and Jianhua Ren, "Understanding conformational effects on proton affinity of peptides containing lysine and its unnatural homologs", 62st ASMS Conference on Mass Spectrometry and Allied Topics, Baltimore, MD, June 15-19, **2014**

16. Ekram Hossain; Yuan Tian; Michael Connolly; Ronald Zuckermann, Jianhua Ren, “Fragmentation Patterns and Mechanisms of Protonated Peptoids under CID Conditions”, 62st ASMS Conference on Mass Spectrometry and Allied Topics, Baltimore, MD, June 15-19, **2014**
17. Alec Follmer, Bhupinder Padda and Jianhua Ren, “Computational Studies of the Gas-Phase Acidity and Basicity of Organic Molecules”, 2014 National Conference on Undergraduate Research, University of Kentucky, April 3-5, **2014**.
18. Alec Follmer, Bhupinder Padda and Jianhua Ren, “Computational Studies of the Gas-Phase Acidity and Basicity of Organic Molecules”, 26th Northern California ACS Undergraduate Research Symposium, University of San Francisco, May 3, **2014**
19. Justin Nguyen, Jigar Patel and Jianhua Ren, “Manual Synthesis of Polypeptides”, 26th Northern California ACS Undergraduate Research Symposium, University of San Francisco, May 3, **2014**
20. Yuan Tian, Chang Liu and Jianhua Ren, “The fragmentation patterns of singly and doubly protonated peptoids”, 2014 Conference on Ion Chemistry and Mass Spectrometry, UCLA Conference Center, Lake Arrowhead, California, January 17–29, **2014**
21. Patrick Batoon and Jianhua Ren, “Understanding the conformational effects on proton affinity of polyalanine peptides containing lysine and its unnatural homologs”, 2014 Conference on Ion Chemistry and Mass Spectrometry, UCLA Conference Center, Lake Arrowhead, California, January 17–29, **2014**

Invited Talks

1. “The Wonder of Helical Peptides”, Research Day, University of the Pacific, April 25, **2015**.
2. “The Ion Chemistry of Peptides and Peptoids”, Department of Chemistry, University of the Pacific, November 29, **2011**.
3. “Intrinsic Acidities of Helical and Coiled Peptides”, University of California-Riverside, November 18, **2011**
4. “Fundamental Studies of Gas-Phase Peptides and Peptoids”, National Institute of Biological Sciences, Beijing, China, July, **2011**
5. “Majoring in Chemistry - Liberal Arts Education at the University of the Pacific”, Beijing Normal University, Beijing, China, July, **2011**.
6. “Charged Biopolymers: Conformational Effects in Gas Phase Peptides and Peptoids”, Beijing Normal University, Beijing, China, May 11, **2010**.
7. “Conformational Effects on the Thermochemical Properties of Peptides”, University of Louisville, November 6, **2009**.
8. “Conformational Effects on the Thermochemical Properties of Peptides”, UC Merced, November 13, **2009**.
9. “Mass Spectrometry and Computational Studies of Organic and Biological Molecules and Ions”, Beijing Normal University, July 2, **2007**.
- 10.** “Amino Acids Dissociation Mechanisms and Energetics”, Department of Chemistry, University of the Pacific, October 7, **2003**.