
DR. CHRIS J. BENNETT

Current Position: Assistant Professor, Department of Physics, University of Central Florida

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RESEARCH INTERESTS

PHYSICAL & ANALYTICAL CHEMISTRY:

- Development of novel ultra-high vacuum techniques and instrumentation · surface science · thin film preparation and characterization · ionization techniques; resonance enhanced multiphoton ionization (REMPI), synchrotron radiation, tunable electron impact · kinetics · molecular beam generation · polymer chemistry · interaction of charged particles and photons with matter · non-equilibrium chemistry · radical & excited state chemistry.

INSTRUMENTAL/COMPUTATIONAL APPROACHES:

- FTIR spectroscopy · Raman spectroscopy · developing new Raman spectroscopy techniques, with biomedical applications · time-of-flight and quadrupole mass spectrometry · synchrotron photoionization · electron-, ion-, and photon-stimulated desorption · temperature programmed desorption · ToF-SIMS · multidimensional spectroscopy (e.g., 3D-IR) · TEM/SEM · Ab initio and DFT the predication of molecular properties · Computer Aided Design · LabView/Matlab/Python Programming.

ASTROCHEMISTRY, ASTROBIOLOGY, AND PLANETARY SCIENCE:

- Planetary instrument development (particularly Raman, nanoIR, and time-of-flight mass spectrometers) · interaction of radiation with surfaces · space weathering of airless bodies · spectral properties of planetary surfaces · Kuiper belt objects · comets · icy satellites · asteroids · meteorites · Mercury · the Moon · the interstellar medium · prebiotic chemistry · origin of life.

EDUCATION

University of Hawai'i at Mānoa, Honolulu	Ph.D.	06/2007 - 05/2009	Physical Chemistry
<i>Dissertation: "An Experimental Investigation of the Effects of Irradiation on Carbon- and Oxygen-bearing Species in Interstellar Ices"</i>		<i>Advisor: Prof. Ralf I. Kaiser</i>	
University of Hawai'i at Mānoa, Honolulu	M.Sc.	08/2002 - 05/2007	Physical Chemistry
University of York, Yorkshire (England)	M.Chem.	08/1998 - 06/2002	Chemistry

PROFESSIONAL EXPERIENCE

- 2016-Present Assistant Professor, Department of Physics, University of Central Florida, Orlando, FL
- 2016-Present Research Scientist, Florida Space Institute, Orlando, FL
- 2016-Present Affiliate Researcher, Georgia Institute of Technology, Atlanta, GA
- 2014-Present Consultant: Spectroscopy for Planetary ICes Environments (SPICE) Laboratory, NASA Goddard Space Flight Center, Greenbelt, DC
- 2015-2016 Research Scientist, Department of Chemistry & Biochemistry, Georgia Institute of Technology, Atlanta, GA
- 2012-2014 Postdoctoral Fellow, Department of Chemistry & Biochemistry, Georgia Institute of Technology, Atlanta, GA
- 2015 Visiting Scientist, Jet Propulsion Laboratory, Pasadena, CA
- 2012 General Chemistry Lecturer, Department of Chemistry, University of Hawai'i at Mānoa, Honolulu, HI
- 2010 Visiting Scientist, Advanced Light Source, University of California, Berkeley, CA
- 2009-2012 Postdoctoral Fellow, NASA Astrobiology Institute, Institute for Astronomy, Honolulu, HI

- 2009 Visiting Scientist, Hefei Light Source, Hefei, Anhui (*China*)
- 2009 Visiting Scientist, Institute de Physique de Rennes, University of Rennes-1, Rennes (*France*)
- 2002-2009 Graduate Student Researcher / Teaching Assistant, Department of Chemistry, University of Hawai'i at Mānoa, Honolulu, HI

HONORS & AWARDS

- NASA Cooperative agreement (2015) NNX15AG81A, "Laboratory Investigations of Interstellar/Planetary/Cometary Ice Analogs", NASA Goddard Spaceflight Center
- Young Investigator Award (2010), Gordon Research Conference on Radiation Chemistry
- Outstanding Teaching Assistant Award (2005), ACS, University of Hawai'i at Mānoa
- Research Assistant Fellowship (2004), NASA Astrobiology Institute, Institute for Astronomy
- Graduate Student Scholarship (2002), University of Hawai'i at Mānoa

RECENT WORKSHOPS & SUMMER SCHOOLS ATTENDED

- Submitted "The Incorporation of Multi-Dimensional Techniques in the Future of Planetary Science" to Planetary Science Vision 2050 Workshop, held 27th-28th February 2017 in Washington, D. C. and presented the same content to the Outer Planets Assessment Group (OPAG), February 22-23 (2017) at Georgia Tech, Atlanta, GA.
- "Water on the Moon" Workshop, NASA SSERVI led, Johns Hopkins Applied Physics Laboratory, Maryland, DC, Nov 15th-17th 2016.
- NASA's 26th Annual "Planetary Science Summer School" (PSSS), held at the Jet Propulsion Laboratory, Pasadena, California (Session II; July 14th-18th 2014).
- "Linear and Non-linear Raman Spectroscopy in the Single Molecule Limit", Center for Chemistry at the Space-Time Limit (CASTL), University of California, Irvine, July 9th-12th 2014.

TEACHING & MENTORING

LECTURER

Department of Physics, University of Central Florida, FL

- 2017, Fall (1 section) PHYS 3802L Intermediate Physics Laboratory
- 2016, Fall (1 section) PHYS 3802L Intermediate Physics Laboratory

Department of Chemistry, University of Hawai'i at Mānoa, Honolulu, HI

- 2012, Summer (1 section) CHEM 151 General Chemistry

TEACHING ASSISTANT

Department of Chemistry, University of Hawai'i at Mānoa, Honolulu, HI

- 2006 (2 sections) CHEM 161L General Chemistry Laboratory I
- 2005, 2006 (4 sections) CHEM 162L General Chemistry Laboratory II
- 2006 (2 sections) CHEM 272L Organic Chemistry Laboratory I
- 2002, 2003, 2006 (6 sections) CHEM 333L Instrumental Analysis Laboratory
- 2003, 2004, 2007 (6 sections) CHEM 352L Physico-Chemical Measurements Laboratory

MENTORING/SUPERVISION

Department of Physics, University of Central Florida, FL

- Amy LeBlue-DeBartola (graduate), Brett Kochanowski (undergraduate), Brian Ferrari (undergraduate), Ronald Herbert (undergraduate), Christopher Arose (undergraduate), Brandon Wilson (undergraduate).

Department of Chemistry & Biochemistry, Georgia Institute of Technology, Atlanta, GA

- Katherina Fiege (post doc), Michael Poston (graduate), Andrew Saydjari (REU student), Dominic DiSanti (REU student), David Aban (undergraduate).

Department of Chemistry, University of Hawai'i at Mānoa, Honolulu, HI

- Gianfranco Vidali (visiting professor), Courtney Ennis (post doc), Seol Kim (post doc), Brant Jones (post doc), Corey Jamieson (graduate), Sebastien Dupraz (graduate), Patrick Gasda (graduate), Philip Holtom

(visiting graduate), Bhala Sivaraman (visiting graduate), Alfredo Quinto (visiting graduate), Tetsuya Hama (visiting graduate), Nick Evans (visiting graduate), Matt Lebar (undergraduate), Sarah Lim (undergraduate).

INVITED LECTURES & PUBLIC OUTREACH

INVITED LECTURES

- **Chris J. Bennett**, *"Astrobiology & Evolution"*, Darwin Week, College of Charleston (2/13/2017)
- **Chris J. Bennett**, *"Space Weathering of Solar System Bodies Leading to the Chemical Alteration of Surfaces and the Generation of Exospheres"*, Planetary Science Seminar, Georgia Institute of Technology (11/09/2014) and Department of Physics and Astronomy, Clemson University, SC (04/17/2015)
- **Chris J. Bennett**, *"Radiation Chemistry from the Interstellar Medium to the Solar System"*, Solar System Exploration Seminar Series, NASA/Goddard Space Center (10/1/2014)
- Astrobiology Seminar Series, NASA Astrobiology Institute, University of Hawai'i at Mānoa (2009-2012)

PUBLIC OUTREACH

- Participated in "Observe the Moon" night, Reflection Pond at University of Central Florida, Dec 8th.
- High school judge for several events at local schools (Lake Nona high school, Walker middle school, and Boon high school) in the Orlando area during spring semester 2017.
- Gave a motivational talk at "Indie Galactic Space Jam"; a local space-related programming competition in the Orlando area, September 15th, 2016.
- 2016 to encourage Remote participant in the 2014 ACCESS/DST "Habitable Planet" program, Cape Town, Africa (2014)
- Presentations, demonstrations, and tours for 'open house', Institute for Astronomy (2004, 2008-2012)
- Instructor at the Ali'i National Summer Teacher Workshop, Institute for Astronomy (2004)

PROFESSIONAL AFFILIATIONS & SERVICE

ARTICLE REVIEWER:

- ACS Earth and Space Chemistry, Icarus, Physical Chemistry Chemical Physics, Journal of Geophysical Research (JGR) – Space Physics, JGR – Planets, , Monthly Notices of the Royal Astronomical Society, Chemical Society Reviews, Journal of Physics and Chemistry of Solids, International Journal of Environmental Analytical Chemistry, and Astrophysical Journal Letters.

REVIEW PANEL PARTICIPANT:

- Planetary Astronomy (PAST), Emerging Worlds (EW), Solar Systems Workings (SSW), Cassini Data Analysis Program (CDAP), and Maturations of Instruments for Solar System Exploration (MatISSE) under the NASA ROSES programs.
- External reviewer for the A*MIDEX Foundation (Aix-Marseille University Excellence Initiative), based in France.
- Served as external reviewer for the National Research, Development and Innovation Office (NKFIH), based in Hungary

PROFESSIONAL MEMBERSHIPS:

- American Chemical Society (since 2011), the Planetary Society (since 2014), the American Geophysical Union (since 2014), and the Meteoritical Society (since 2017).

CONFERENCE ORGANIZATION/PARTICIPATION:

- Session Chair, *"Young Leaders Session"*, Annual Joint Symposium Florida Chapter of the American Vacuum Society, 3/16/2017.
- Discussion Leader, *"Connecting Life's Building Blocks: The Challenges of Biopolymers"*, Gordon Research Conference on the Origin of Life, Galveston, TX (Jan 17th - 22nd, 2016).

INTERNATIONAL CONFERENCE PRESENTATIONS

1. **C.J. Bennett**, Claire Pirim, Jennifer Noble, Laurene Tetard, Alfons Schulte, Dan Britt, Andrew Saydjari, Aaron McKee, Jay Forsythe, Eric Parker, Ramanarayanan Krishnamurthy, Facundo Fernandez, Thomas Orlando, Nicholas Hud “*Extraterrestrial Contributions to the Prebiotic Inventory of the Early Earth from Meteorites*”, Southeastern Regional Meeting of the American Chemical Society (SERMACS), Charlotte NC, November 7th-11th (2017) [**oral, invited - upcoming**]
2. **C.J. Bennett**, M.J. Poston, T. M. Orlando “*Results from Recent Experiments on Electron-Stimulated Desorption from Icy & Rocky Surfaces*”, 253rd American Chemical Society (ACS) Meeting, San Francisco, April 2nd-6th (2017) [**oral**]
3. **C.J. Bennett**, “*Connecting Life’s Building Blocks: The Challenges of Biopolymers*”, Gordon Research Conference on the Origin of Life, Galveston, TX, January 17-22 (2016) [**discussion leader**]
4. **C.J. Bennett**, M. J., Poston, J. L. McLain, T. M. Orlando, “*The generation of surface-bound exospheres via Electron-Stimulated Desorption (and Related Phenomena): Results from Apollo samples and Hermitian Regolith Simulants*”, AGU Fall, San Francisco, CA, December 15-19 (2014) [**poster**]
5. Jensema, R. J.; Arias-Young, T. M.; Wilkins, A. N.; Ermakov, A.; **Bennett, C.**; Dietrich, A.; Hemingway, D.; Klein, V.; Mane, P.; Marr, K. D.; Masterson, J.; Siegel, V.; Stober, K. J.; Talpe, M.; Vines, S. K.; Wetteland, C. J. “*Core to Atmosphere Exploration of Ice Giants: A Uranus Mission Concept Study*”, AGU Fall, San Francisco, CA, December 15-19 (2014) [**poster**]
6. **C.J. Bennett**, M. J. Poston, A. J. DeSimone, T.M. Orlando, “*Space Weathering Processes throughout the Inner and Outer Solar System*”, DIET14, Pacific Grove, CA, October 13-17 (2014) [**oral, invited**]
7. **C.J. Bennett**, B. M. Jones, X. Gu, R. I. Kaiser, “*Interaction of Charged Particles with Kuiper Belt Ices and Astrobiological Implications*”, 243rd ACS National Meeting, San Diego, March 25-29 (2012) [**oral**]
8. **C. J. Bennett**, C. Ennis, B. M. Jones, R. I. Kaiser, “*Interaction of Charged Particles with Kuiper Belt Ices*”, PacifiChem 2010, Honolulu, HI, December 15-20 (2010) [**oral**]
9. **C. J. Bennett**, Y. S. Kim., C. Ennis, B. M. Jones, T. N. Chiesl, A. M. Stockton, R. A. Mathies, R. I. Kaiser, “*The Formation of Astrobiologically Important Molecules on Kuiper Belt Objects*”, Gordon Research Conference on Radiation Chemistry, Andover, NH, July 18-23 (2010) [**poster**]
10. **C. J. Bennett**, C. Ennis, B. M. Jones, R. I. Kaiser, “*Towards the Formation of Water in Lunar Silicates by Solar Radiation*”, AbSciCon 2010, League City, Texas, April 26-29 (2010) [**poster**]
11. **C. J. Bennett**, C. S. Jamieson, M. D. Lebar, Y. Osamura, A. M. Mebel, R. I. Kaiser, “*A Combined Experimental and Theoretical Study on the Charged Particle Processing of Low Temperature Ices*”, Proceedings of the 231st IAU Symposium, Pacific Grove, CA, August 29-Sept. 2 (2005) [**poster**]
12. **C. J. Bennett**, M. Lebar, C. S. Jamieson, R. I. Kaiser, “*Design and Operation of a Quadruply Pumped Extreme Ultra-High Vacuum Machine to Study the Formation of Astrobiologically Relevant Molecules in Extraterrestrial Ices*”, AbSciCon 2004, NASA Ames, CA, March 28-April 1 (2004) [**poster**]

PEER-REVIEWED PUBLICATIONS [H-INDEX ~17]

1. **C.J. Bennett**, J. L. McLain, M. Sarantos, R. D. Gann, A. DeSimone, T. M. Orlando, “Potential Contributions to Mercury’s Exospheric Calcium and the Loss of Hollows Surface Material: Photon-Stimulated Desorption of Calcium Neutrals from Calcium Sulfide”, *Journal of Geophysical Research: Planets*, 121, 137 (2016)
2. **C.J. Bennett**, C. P. Ennis, R. I. Kaiser, “Implantation of Energetic D⁺ Ions into Carbon Dioxide Ices and Implications to our Solar System: Formation of D₂O and D₂CO₃”, *the Astrophysical Journal*, 794, 57 (2014)
3. **C.J. Bennett**, C. P. Ennis, R. I. Kaiser, Experimental Studies on the Formation of D₂O and D₂O₂ by Implantation of Energetic D⁺ Ions into Oxygen Ices. *The Astrophysical Journal*, 782, 63 (2014)
4. **C.J. Bennett**, C. Pirim, T. M. Orlando, “Space Weathering of Solar System Bodies – A Laboratory Perspective”, *Chemical Reviews*, 113(12), 9086 (2013)

5. **C.J. Bennett**, S. J. Brotton, B. M. Jones, A. K. Misra, S. K. Sharma, R. I. Kaiser, "High-Sensitivity Raman Spectrometer to Study Pristine and Irradiated Interstellar Ice Analogs", *Analytical Chemistry*, 85(12), 5659 (2013)
6. S.B. Morales, **C.J. Bennett**, S.D. Le Picard, A. Canosa, I.R. Sims, B.J. Sun, P.H. Chen, A.H.H. Chang, V.V. Kislov, A.M. Mebel, X. Gu, F. Zhang, P. Maksyutenko, R.I. Kaiser, "A Crossed Molecular Beam, Low-Temperature Kinetics, and Theoretical Investigation of the Reaction of the Cyano Radical (CN) with 1,3-Butadiene (C₄H₆). A Route to Complex Nitrogen-Bearing Molecules in Low-Temperature Extraterrestrial Environments", *the Astrophysical Journal*, 742, 26 (2011)
7. B. M. Jones, **C.J. Bennett**, C.S. R.I. Kaiser, "Mechanistical studies on the Production of Formamide (H₂NCHO) within Interstellar Ice Analogs", *the Astrophysical Journal*, 734:78, 1 (2011)
8. C. P. Ennis, **C.J. Bennett**, B.M. Jones, R.I. Kaiser, "Formation of D₂-water and D₂-carbonic Acid in Oxygen-Rich Solar System Ices via D₂⁺ Irradiation", *the Astrophysical Journal*, 733:79, 1-11 (2011)
9. C.P. Ennis, **C.J. Bennett**, R.I. Kaiser, "On The Formation of Ozone in Oxygen-rich Solar System Ices via Ionizing Radiation", *Physical Chemistry Chemical Physics*, 13, 9469 (2011)
10. N. L. Evans, S. Ullrich, **C.J. Bennett**, R.I. Kaiser, "On the Interaction of Adenine with Ionizing Radiation at 10 K: Mechanistical Studies and Astrobiological Significance", *the Astrophysical Journal*, 730:69, 1 (2011)
11. Quinto-Hernandez, A. M. Wodtke, **C.J. Bennett**, Y.S. Kim, R.I. Kaiser, "On the Interaction of Methyl Azide (CH₃N₃) Ices with Ionizing Radiation: Formation of Methanimine (CH₂NH), Hydrogen Cyanide (HCN), and Hydrogen Isocyanide (HNC)", *Journal of Physical Chemistry A*, 115, 250 (2010)
12. **C.J. Bennett**, T. Hama, Y.S. Kim, M. Kawasaki, R.I. Kaiser, "Laboratory Studies on the Formation of Formic Acid (HCOOH) in Interstellar and Cometary Ices", *the Astrophysical Journal*, 727, 27 (2010)
13. **C.J. Bennett**, B.M. Jones, E. Knox, J. Perry, Y.S. Kim, R.I. Kaiser, "Mechanistical Studies on the formation and Nature of the XCN (OCN⁻) Species", *the Astrophysical Journal*, 723, 641 (2010)
14. J. He, K. Gao, G. Vidali, **C.J. Bennett**, R.I. Kaiser, "Formation of Molecular Hydrogen from Methane Ice", *the Astrophysical Journal*, 721, 1656 (2010)
15. **C.J. Bennett**, S.B. Morales, S.D. Le Picard, A. Canosa, I.R. Sims, Y.H. Shih, A.H.H. Chang, X. Gu, F. Zhang, R.I. Kaiser, "A Chemical Dynamics, Kinetics, and Theoretical Study on the Reaction of the Cyano Radical (CN; X²Σ⁺) with Phenylacetylene (C₆H₄CCH; X¹A₁)", *Physical Chemistry Chemical Physics*, 12, 8737 (2010)
16. **C.J. Bennett**, C.S. Jamieson, R.I. Kaiser, "Mechanistical studies on the formation and destruction of carbon monoxide (CO), carbon dioxide (CO₂), and carbon trioxide (CO₃) in interstellar ice analog samples", *Physical Chemistry Chemical Physics*, 12(16), 4032 (2010)
17. Y.S. Kim, **C.J. Bennett**, L.-H. Chen, K. O'Brien, R. I. Kaiser, "Laboratory studies on the irradiation of solid ethane analog ices and implications to Titan's chemistry", *the Astrophysical Journal*, 711 (2, Pt. 1), 744 (2010)
18. **C.J. Bennett**, C.S. Jamieson, R.I. Kaiser, "An experimental investigation of the decomposition of carbon monoxide and formation routes to carbon dioxide in interstellar ices", *Astrophysical Journal Supplement Series*, 182(1), 1 (2009)
19. **C.J. Bennett**, C.S. Jamieson, R.I. Kaiser, "Mechanistical studies on the formation of carbon dioxide in extraterrestrial carbon monoxide ice analog samples", *Physical Chemistry Chemical Physics*, 11(21), 4210 (2009)
20. **C.J. Bennett**, C.S. Jamieson, R.I. Kaiser, "Mechanistical Studies on the Decomposition of Carbon Suboxide in a Cometary Ice Analogue", *Planetary and Space Science*, 56, 1181 (2008)
21. **C.J. Bennett**, R.I. Kaiser, "On the Formation of Glycolaldehyde (HCOCH₂OH) and Methyl Formate (HCOOCH₃) in Interstellar Ice Analogs", *the Astrophysical Journal*, 661, 899 (2007)
22. **C.J. Bennett**, S.H.Chen, B.J.Sun, A.H.H. Chang, R.I. Kaiser, "Mechanistical Studies on the Irradiation of Methanol in Extraterrestrial Ices", *the Astrophysical Journal*. 660, 1588 (2007)

- 23. C.J. Bennett**, R.I. Kaiser, "The Formation of Acetic Acid (CH_3COOH) in Interstellar Ice Analogs", *the Astrophysical Journal*, 660, 1289 (2007)
- 24. C.S. Jamieson**, Y. Guo, X. Gu, F. Zhang, **C.J. Bennett**, R.I. Kaiser, "Laboratory Studies on the Formation of Carbon-Bearing Molecules in Extraterrestrial Environments – From the Gas Phase to the Solid State", *Proceedings of the NASA Laboratory Astrophysics Workshop; NASA Special Issue, CP – 2006- 214549*, 68-71 (2006)
- 25. C.J. Bennett**, C.S. Jamieson, Y. Osamura, R.I. Kaiser, "Laboratory studies on the irradiation of methane in interstellar, cometary, and solar system ices", *the Astrophysical Journal*, 653, 792 (2006)
- 26. C.J. Bennett**, R.I. Kaiser, "Laboratory studies on the formation of ozone (O_3) on icy satellites and on interstellar and cometary ices", *the Astrophysical Journal*, 635(2, Pt. 1), 1362 (2005)
- 27. C.J. Bennett**, Y. Osamura, M.D. Lebar, R.I. Kaiser, "Laboratory studies on the formation of three $\text{C}_2\text{H}_4\text{O}$ isomers- acetaldehyde (CH_3CHO), ethylene oxide ($\text{C}_2\text{H}_4\text{O}$), and vinyl alcohol (CH_2CHOH) in interstellar and cometary ices", *the Astrophysical Journal*, 634, 698 (2005)
- 28. D.S. Sillars**, **C.J. Bennett**, Y. Osamura, R.I. Kaiser, "Infrared spectroscopic detection of the methylsilyl (CH_3SiH_2 , X^2A') and the silylmethyl (CH_2SiH_3 , X^2A') radicals and their partially deuterated counterparts in low temperature matrices", *Chemical Physics*, 315, 41 (2005)
- 29. P.D. Holtom**, **C.J. Bennett**, Y. Osamura, N.J. Mason, R.I. Kaiser, "A Combined Experimental and Theoretical Study on the Formation of the Amino Acid Glycine ($\text{NH}_2\text{CH}_2\text{COOH}$) and its Isomer (CH_3NHCOOH) in Extraterrestrial Ices", *the Astrophysical Journal*, 626, 940 (2005)
- 30. C.J. Bennett**, C.S. Jamieson, Y. Osamura, R.I. Kaiser, "A combined experimental and computational investigation on the synthesis of acetaldehyde ($\text{CH}_3\text{CHO}(X^1A')$) in interstellar ices", *the Astrophysical Journal*, 624, 1097 (2005)
- 31. C.S. Jamieson**, **C.J. Bennett**, A.M. Mebel, R.I. Kaiser, "Investigating the mechanism for the formation of nitrous oxide ($\text{N}_2\text{O}(X^1\Sigma^+)$) in extraterrestrial ices", *the Astrophysical Journal*, 624, 436 (2005)
- 32. C.J. Bennett**, D. Sillars, Y. Osamura, R.I. Kaiser, "Infrared spectroscopic identification of the methylsilylydyne (SiCH_3 , X^2A'') and the silenyl (H_2CSiH , X^2A') radicals in methane-silane matrices", *Chemical Physics Letters*, 404, 327 (2005)
- 33. D. Sillars**, **C.J. Bennett**, Y. Osamura, R.I. Kaiser, "First infrared spectroscopic characterization of the disilyl (Si_2H_5) and d5-disilyl (Si_2D_5) radicals in low temperature silane matrices", *Chemical Physics*, 305, 141 (2004)
- 34. D. Sillars**, **C.J. Bennett**, Y. Osamura, R.I. Kaiser, "Infrared spectroscopic detection of the disilenyl (Si_2H_3) and d3-disilenyl (Si_2D_3) radicals in silane and d4-silane matrices", *Chemical Physics Letters*, 392, 541 (2004)
- 35. C.J. Bennett**, C. Jamieson, A.M. Mebel, R.I. Kaiser, "Untangling the formation of the cyclic carbon trioxide isomer in low temperature carbon dioxide ices", *Physical Chemistry Chemical Physics*, 6, 735 (2004)