

Karl J. Feierabend

Curriculum Vitae

The College of Wooster
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Wooster, OH 44691
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Professional Positions

The College of Wooster, Wooster, Ohio

Associate Professor of Chemistry, 2009 – Present

- Courses taught include Introductory Chemistry, Principles of Chemistry (and associated laboratory), Physical Chemistry (and associated laboratory), Environmental Chemistry, and First-Year Seminar

Cooperative Institute for Research in the Environmental Sciences (CIRES)

Research Scientist at the National Oceanic and Atmospheric Administration (NOAA), Chemical Sciences Division, 2006 – 2009

- Laboratory research including gas-phase photochemistry, spectroscopy, and kinetics

Education

University of Colorado at Boulder

Boulder, Colorado

Ph.D. in Physical Chemistry

May, 2006

Dissertation Title: *Spectroscopy of Atmospherically Relevant Inorganic Acids*

Furman University

Greenville, South Carolina

B.S. in Chemistry

June, 2001

Awards

Single-Investigator Cottrell College Science Award, Research Corporation for Science Advancement, 2011 – 2014

William H. Wilson Awards, 2010 – 2014

Ralston Endowment Fund for Faculty Development, 2009

NASA Earth Systems Science Fellowship, 2002 – 2005

Professional Affiliations and Service

Member, American Chemical Society (ACS), 2004 – Present

Peer Reviewer for the journals *The Journal of Physical Chemistry A*, *Physical Chemistry Chemical Physics* and *The Analyst*, 2007 – Present

Publications

Feierabend KJ, Karazsia BT, *Interteaching in the Introductory Chemistry Classroom: A Controlled Parallel Study*, in preparation.

Kuen, D, **Feierabend KJ**, *Cavity-enhanced overtone spectroscopy of methanol in aprotic solvents: probing solute-solvent interactions and self-associative behavior*, Journal of Physical Chemistry A, 118 (16): 2942-2951 April 2014

Talukdar, RK, Zhu L, **Feierabend KJ**, Burkholder JB, *Rate coefficients for the reaction of methylglyoxal (CH_3COCHO) with OH and NO_3 and glyoxal (HCO)₂ with NO_3* , Atmospheric Chemistry and Physics, 11: 10837-10851 November 2011

Bassandorj, M, **Feierabend, KJ**, Burkholder JB, *Rate coefficients and ClO radical yields in the reaction of $\text{O}(^1\text{D})$ with $\text{CClF}_2\text{CFCl}_2$, CCl_3CF_3 , $\text{CClF}_2\text{CClF}_2$, and CCl_2FCF_3* , International Journal of Chemical Kinetics, 43(8): 393-401 August 2011

Papanastasiou, DK, **Feierabend KJ**, Burkholder JB, *Cl_2O photochemistry: UV/vis absorption spectrum temperature dependence and $\text{O}(^3\text{P})$ quantum yield at 193 and 248 nm*, Journal of Chemical Physics, 134: #204310 May 2011

Feierabend, KJ, Papanastasiou DK, Burkholder JB, *ClO radical yields in the reaction of $\text{O}(^1\text{D})$ with Cl_2 , HCl, chloromethanes, and chlorofluoromethanes*, Journal of Physical Chemistry A, 114 (45): 12052-12061 October 2010

Feierabend KJ, Flad JE, Brown SS, Burkholder JB, Ravishankara AR, *HCO Quantum Yields in the Photolysis of Glyoxal, HC(O)C(O)H , from 290 to 420 nm*, Journal of Physical Chemistry A, 113 (27): 7784-7794 June 2009

Vaida V, **Feierabend KJ**, Rontu N, Takahashi K, *Sunlight initiated photochemistry: excited vibrational states of atmospheric chromophores*, International Journal of Photoenergy, Art. No. 138091, 2008

Feierabend KJ, Zhu L, Talukdar RK, Burkholder JB, *Rate coefficients for the OH + HC(O)C(O)H (glyoxal) reaction between 210 and 390 K*, Journal of Physical Chemistry A, 112 (1): 73-82 January 2008

Havey DK, **Feierabend KJ**, Takahashi K, Skodje RT, Vaida V, *Experimental and theoretical investigation of vibrational overtones of glycolic acid and its hydrogen bonding interactions with water*, Journal of Physical Chemistry A 110 (20): 6439-6446 May 2006

Feierabend KJ, Havey DK, Varner ME, Stanton JF, Vaida V, *A comparison of experimental and calculated spectra of HNO₃ in the near-infrared using Fourier transform infrared spectroscopy and vibrational perturbation theory*, Journal of Chemical Physics 124 (12): Art. No. 124323 Mar 2006

Feierabend KJ, Havey DK, Brown SS, Vaida V, *Cavity ringdown spectroscopy of the 4 ν_9 and 5 ν_9 O-H stretching overtones of H₂SO₄*, Chemical Physics Letters 420 (4-6): 438-442 Mar 2006

Hintze PE, **Feierabend KJ**, Havey DK, Vaida V, *High-resolution spectroscopy of H₂SO₄, HDSO₄, and D₂SO₄ vapor in the region 1200-10,000 cm⁻¹*, Spectrochimica Acta Part A-Molecular and Biomolecular Spectroscopy 61 (4): 559-566 Feb 2005

Havey DK, **Feierabend KJ**, Black JC, Vaida V, *Temperature-dependent infrared spectra of torsional vibrations in acetic acid*, Journal of Molecular Spectroscopy 229 (2): 151-157 Feb 2005

Havey DK, **Feierabend KJ**, Vaida V, *Vapor-phase vibrational spectrum of glycolic acid, CH₂OHCOOH, in the region 2000-8500 cm⁻¹*, Journal of Physical Chemistry A 108 (42): 9069-9073 Oct 21 2004

Feierabend KJ, Havey DK, Vaida V, *Gas phase spectroscopy of HNO₃ in the region 2000-8500 cm⁻¹*, Spectrochimica Acta Part A-Molecular and Biomolecular Spectroscopy 60 (12): 2775-2781 Oct 2004

Vaida V, Kjaergaard HG, **Feierabend KJ**, *Hydrated complexes: Relevance to atmospheric chemistry and climate*, International Reviews in Physical Chemistry 22 (1): 203-219 Jan-Mar 2003

Bordelon JA, **Feierabend KJ**, Siddiqui SA, Wright LL, Petty JT, *Viscometry and atomic force microscopy studies of the interactions of a dimeric cyanine dye with DNA*, Journal of Physical Chemistry B 106 (18): 4838-4843 May 9 2002

Poster Presentations

Feierabend, KJ, Karazsia B, *Interteaching in the general chemistry classroom: a low-tech alternative to the conventional "flipped" approach*, Abstracts of the Papers of the American Chemical Society xxx:184-CHEN, April 2018

Feierabend, KJ, Bowers B, *Solvent-dependence of the phenol-benzene H- π equilibrium constant*, Abstracts of the Papers of the American Chemical Society xxx:522-PHYS, April 2018

Kuen, D, **Feierabend KJ**, *Alcohol-solvent interactions probed using cavity-enhanced absorption spectroscopy of O-H stretching vibrational overtones*, Abstracts of Papers of the American Chemical Society 245: 309-PHYS, April 7 2013

Craig RL, Small TP, Anderson AS, **Feierabend KJ**, *UV photodegradation kinetics of aqueous oxalate species*, Abstracts of Papers of the American Chemical Society 243: 185-PHYS, March 26 2012

Feierabend KJ, Flad JE, Brown SS, Burkholder JB, *HCO Quantum Yields in the Photolysis of Glyoxal, HC(O)C(O)H, from 290 to 420 nm*, Abstracts of Papers of the American Chemical Society 235: 59-PHYS, April 6 2008

Feierabend KJ, Talukdar RK, Zhu L, Ravishankara AR, Burkholder JB, *Rate coefficients for the OH + (CHO)₂ (glyoxal) reaction between 240 and 400 K*, AGU Fall Meeting, A23A-0926, December 12, 2006

Havey DK, **Feierabend KJ**, Hintze PE, Vaida V, *Use of near-IR spectroscopy in HNO₃ and H₂SO₄ in evaluating photodissociation pathways relevant to atmospheric chemistry*, Abstracts of Papers of the American Chemical Society 228: U224-U224 155-PHYS Part 2, Aug 22 2004

Feierabend KJ, Havey DK, *Gas phase spectroscopy of HNO₃ in the region 2000 cm⁻¹ to 8500 cm⁻¹*, Abstracts of Papers of the American Chemical Society 228: U273-U273 485-PHYS Part 2, Aug 22 2004

Feierabend KJ, Vaida V, Kjaergaard HG, Havey DK, *Hydrated complexes: Atmospheric implications and spectroscopy*, Abstracts of Papers of the American Chemical Society 226: U310-U310 272-PHYS Part 2, Sep 2003

Invited Talks “In the OH-Me stretch: probing noncovalent interactions using cavity-enhanced spectroscopy and computational chemistry,” John Carroll University, December 10, 2014

“Understanding solute-solvent interactions with spectroscopy,” Mt. Union University, November 2, 2012

Conference Talks **Feierabend KJ**, Karazsia BK, *Interteaching: An Active Learning Approach for the STEM Classroom*, Ohio Project Kaleidoscope: Increasing STEM Success in Higher Education, May 16, 2015