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EDUCATION

Ph.D., Chemistry, 1989, University of California, Berkeley
B.A., Chemistry, 1983, Brandeis University, *magna cum laude*

EXPERIENCE

1995-present, Research Chemist, Naval Research Laboratory
Ultrafast IR spectroscopy of photochemistry and vibrational dynamics, fabrication and characterization of nanomaterials, plasmonics, optical fire detection, in situ optical studies of solid oxide fuel cells

1992-1995, Postdoctoral Fellow, Naval Research Laboratory
Femtosecond tunable deep UV photoionizaton spectroscopy; ultrafast IR spectroscopy.

1990-1992, Postdoctoral Fellow, Chemistry, Univ. of Pennsylvania, Prof. R.M. Hochstrasser
Ultrafast IR pump-IR probe spectroscopy; vibrational and rotational dynamics of ions in solution; nonlinear and sum frequency IR spectroscopy of surface adsorbates.

1983-1989, Research Fellow, Chemistry, University of California, Prof. R. J. Saykally
High resolution infrared spectroscopy of gas phase molecular ions; high resolution absorption spectroscopy; velocity modulation and direct absorption of ions.

PAPERS PUBLISHED IN REFEREED JOURNALS (Selected of 85)

Published Papers

- M.B. Pomfret, D.J. Brown, A. Epshteyn, A.P. Purdy and J.C. Owrutsky, *Electrochemical Template Deposition of Aluminum Nanorods Using Ionic Liquids*, Chem. Mater. ***20,*** 5945-5947 (2008).
- J.C. Owrutsky, M.B. Pomfret and D.J. Brown, *Coherent Acoustic Oscillations of Nanorods Composed of Various Metals*, Journal of Physical Chemistry C ***113,*** 10947-10955 (2009).
- C. Houchins, D. Weidinger and J.C. Owrutsky, *Vibrational Spectroscopy and Dynamics of the Hydrazoic and Isothiocyanic Acids in Water and Methanol*, J. Phys. Chem. A ***114,*** 6569-6574 (2010).
- C.P. Minor, D.A. Steinhurst, K.J. Johnson, S.L. Rose-Pehrsson, J.C. Owrutsky, S.C. Wales and D.T. Gottuk, *A Full-Scale Prototype Multisensor System for Damage Control and Situational Awareness*, Fire Technology ***46,*** 437-469 (2010).
- J.C. Owrutsky, C. Houchins, D. Weidinger and D. Brown, *Vibrational Spectra and Dynamics of Anions and Acids in Ionic Liquids*, Molten Salts and Ionic Liquids 17, **33**, 621-626 (2010).
- M.B. Pomfret, J.C. Owrutsky and R.A. Walker, *In Situ Optical Studies of Solid-Oxide Fuel Cells*, Annual Review of Analytical Chemistry, Vol 3, **3**, 151-174 (2010).
- M.B. Pomfret, J.J. Pietron and J.C. Owrutsky, *Measurement of Benzenethiol Adsorption to Nanostructured Pt, Pd, and PtPd Films Using Raman Spectroelectrochemistry*, Langmuir ***26,*** 6809-6817 (2010).
- M.B. Pomfret, D.A. Steinhurst, D.A. Kidwell and J.C. Owrutsky, *Thermal imaging of solid oxide fuel cell anode processes*, J. Power Sources ***195,*** 257-262 (2010).
- D. Weidinger, G.M. Sando and J.C. Owrutsky, *Vibrational dynamics of metal cyanides*, Chem. Phys. Lett. ***489,*** 169-174 (2010).
- B.C. Eigenbrodt, M.B. Pomfret, D.A. Steinhurst, J.C. Owrutsky and R.A. Walker, *Direct, In Situ Optical Studies of Ni-YSZ Anodes in Solid Oxide Fuel Cells Operating with Methanol and Methane*, Journal of Physical Chemistry C ***115,*** 2895-2903 (2011).

- J.L. Kulp, III, J.C. Owrutsky, D.Y. Petrovykh, K.P. Fears, R. Lombardi, L.A. Nafie and T.D. Clark, *Vibrational circular-dichroism spectroscopy of homologous cyclic peptides designed to fold into beta helices of opposite chirality*, Biointerphases ***6,*** 1-7 (2011).
- M.B. Pomfret, D.A. Steinhurst and J.C. Owrutsky, *Methanol and Ethanol Fuels in Solid Oxide Fuel Cells: A Thermal Imaging Study of Carbon Deposition*, Energy & Fuels ***25,*** 2633-2642 (2011).
- M.B. Pomfret, D.A. Steinhurst and J.C. Owrutsky, *Thermal Imaging of Solid Oxide Fuel Cell Anode Degradation with Dry and Wet Ethanol Fuel Flows*, Solid Oxide Fuel Cells 12, **35**, 1563-1570 (2011).
- D. Weidinger, D.J. Brown and J.C. Owrutsky, *Transient absorption studies of vibrational relaxation and photophysics of Prussian blue and ruthenium purple nanoparticles*, J. Chem. Phys. ***134,*** (2011).
- M.B. Pomfret, R.A. Walker and J.C. Owrutsky, *High-Temperature Chemistry in Solid Oxide Fuel Cells: In Situ Optical Studies*, Journal of Physical Chemistry Letters ***3,*** 3053-3064 (2012).
- B.S. Simpkins, J.P. Long, O.J. Glembocki, J. Guo, J.D. Caldwell and J.C. Owrutsky, *Pitch-dependent resonances and near-field coupling in infrared nanoantenna arrays*, Opt. Express ***20,*** 27725-27739 (2012).
- D. Weidinger, C. Houchins and J.C. Owrutsky, *Vibrational dynamics of tricyanomethanide*, Chem. Phys. Lett. ***525-26,*** 60-63 (2012).
- J.D. Caldwell, O.J. Glembocki, Y. Francescato, N. Sharac, V. Giannini, F.J. Bezares, J.P. Long, J.C. Owrutsky, I. Vurgaftman, J.G. Tischler, V.D. Wheeler, N.D. Bassim, L.M. Shirey, R. Kasica and S.A. Maier, *Low-Loss, Extreme Subdiffraction Photon Confinement via Silicon Carbide Localized Surface Phonon Polariton Resonators*, Nano Lett. ***13,*** 3690-3697 (2013).
- R. Compton, H.K. Gerardi, D. Weidinger, D.J. Brown, W.J. Dressick, E.J. Heilweil and J.C. Owrutsky, *Spectra and relaxation dynamics of the pseudohalide (PS) vibrational bands for* $Ru(bpy)_2(PS)_2$ *complexes, PS = CN, NCS and* N_3^-, Chem. Phys. ***422,*** 135-142 (2013).
- M.B. Pomfret, D.A. Steinhurst and J.C. Owrutsky, *Ni/YSZ solid oxide fuel cell anodes operating on humidified ethanol fuel feeds: An optical study*, J. Power Sources ***233,*** 331-340 (2013).
- F.J. Bezares, J.P. Long, O.J. Glembocki, J.P. Guo, R.W. Rendell, R. Kasica, L. Shirey, J.C. Owrutsky, and J.D. Caldwell, *Mie resonance-enhanced light absorption in periodic silicon nanopillar arrays*, Opt. Express, ***21,*** 27587-27601 (2013**)**.
- R. Compton, S.M. Prokes, O.J. Glembocki, I.R. Pala, H.K. Gerardi, and J.C. Owrutsky, *Observation of coherent oscillations in plasma-enhanced atomic layer deposition Ag films*, Appl. Phys. Lett., ***104,*** (2014**)**.
- J.D. Kirtley, D.A. Steinhurst, J.C. Owrutsky, M.B. Pomfret, and R.A. Walker, *In situ optical studies of methane and simulated biogas oxidation on high temperature solid oxide fuel cell anodes*, PCCP, ***16,*** 227-236 (2014).

Books and Chapters in Books

- J.C. Owrutsky, D. Raftery and R.M. Hochstrasser, *Vibrational-Relaxation Dynamics in Solutions*, Annu. Rev. Phys. Chem., **45**, 519-555 (1994).
- M. B. Pomfret, J. C. Owrutsky, R. A. Walker. "In situ Optical Studies of Solid Oxide Fuel Cells" Annu. Rev. Anal. Chem. (2010) 3, 151.

Patents Issued (2 pending)

- J.C. Owrutsky, and D.A. Steinhurst, *Fire detection method*, Patent 7154400, Dec. 26, 2006.