

Matthew F. Tuchler
Associate Professor of
Chemistry

EMPLOYER: Department of Chemistry and Biochemistry, Washington and Lee University,
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EDUCATION:

B.A. in Chemistry, Haverford College, 1986

M.A. in Chemistry, University of Chicago, 1989

Ph.D. in Physical Chemistry, University of Illinois at Urbana, 1995

PROFESSIONAL POSITIONS:

Postdoc in lab of Curt Wittig at USC (1995-98)

Asst. Prof. in Department of Chemistry and Biochemistry, Washington and Lee
University, (1998-current)

AWARDS AND FELLOWSHIPS:

Phi Beta Kappa Society, 1986

American Chemical Society (Philadelphia Chapter) Academic Achievement

Award, 1986 Outstanding Teacher, Freshman Chemistry, University of Illinois, 1989

University of Illinois Graduate Fellow (1990-1993)

PUBLICATIONS AND INVITED LECTURES

“Alternative Assessment of Active Learning” (Rebecca A. Hunter, Rebecca R.
Pompano, Matthew F. Tuchler, ACS Symposium Series vol 1409 (“Active Learning in
the Analytical Chemistry Curriculum”, 01/31/2022) chpt 15.

“Exams that align with active learning classrooms” invited talk (04/27/2022) in the
Analytical Division of the American Chemical Society National Meeting, Spring 2021. I
presented as part of the “Active Learning in the Analytical Chemistry Curriculum”
symposium.

“Effects of Laser Line-shape on Optical Determination of Equilibrium Constants
Using CRDS”, *Gordon Research Conference on Atmospheric Chemistry*, September
4-9, 2005,
Big Sky, Montana

“Fundamentals of Quantum Chemistry by James House (2nd edition)” Book Review for
J.Chem. Ed., 82 (2005) 1002.

“CRDS Approach to Gas Phase Equilibrium Constants: The Case of $N_2O_4 \leftrightarrow 2NO_2$ at
283K.” (Tuchler, M.; Schmidt, K.L.; Morgan, M.M.; *Chem. Phys Lett.* 401(2005) 393-
398)

“Using Radial Probability Distributions and Effective Charge Fields to Understand Fourth Row Configuration and Ionization Behavior: The Case of Sc”, (in process).

“Quantum Mechanics: A Conceptual Approach by Hendrick Hamerka” Book Review for J.Chem Ed., 81 (2004).

“Using Cavity Ringdown Spectroscopy to Measure Equilibrium Constants: The Case of $\text{NO}_2 \leftrightarrow \text{N}_2\text{O}_4$ at 283 K.”, Sci. Mix Session, American Chemical Society Meeting, Anaheim, CA. 03/04.

“A CRAS Approach to Equilibrium Constants: The Case of NO_2 and N_2O_4 ”, *Gordon Research Conference on Atmospheric Chemistry, September, 2003, Big Sky, Montana*

“A CRAS Approach to Equilibrium”, presented to the Department of Chemistry, The College of the Holy Cross, 12/18/02.

“Reaction Dynamics of Small Molecules: The Devil is in the Details”, presented to the Department of Chemistry, Virginia Polytechnic Institute, 03/10/00.

“Photoinitiated H_2CO Unimolecular Decomposition: Accessing $\text{H}+\text{HCO}$ products via S_0 and T_1 Pathways”, L.R. Valachovic, M.F. Tuchler, M Dulligan, Th. Droz-Georget, M. Zyrianov, A Kolessov, C. Wittig, *J. Chem Phys.*, **112**(6), 2752 (2000).

”HCO Rotational Excitation in the Photoinitiated Unimolecular Decomposition of H_2CO ”, M. J. Dulligan, M. F. Tuchler, J. S. Zhang, A. Kolessov, C. Wittig, *Chem. Phys. Lett.* **276**, 84 (1997).

“Real-Time Study of Bimolecular Interactions – Direct Detection of Internal Conversion Involving $\text{Br}(^2\text{P}_{1/2}) + \text{I}_2(v=0) \rightarrow \text{Br}(^2\text{P}_{3/2}) + \text{I}_2(v>0)$,” M. F. Tuchler, S.A. Wright, J. D. McDonald, *J. Chem. Phys.* 106, 2634 (1997).

“Picosecond Observation of Electronic Quenching: $\text{Br}(^2\text{P}_{1/2}) + \text{I}_2(v=0) \rightarrow \text{Br}(^2\text{P}_{3/2}) + \text{I}_2(v>0)$ by Geometrically Restricted Reaction,” S. A. Wright, M. F. Tuchler, J. D. McDonald; *Chem. Phys. Lett.* **226**, 570 (1994).

COURSES TAUGHT

Chemistry 110 – General Chemistry (as of 2012)

Chemistry 111 – General Chemistry

Chemistry 112 - Aqueous Inorganic and Quantitative Chemistry

Chemistry 151 – The Chemistry of Cooking

Chemistry 165 – Dynamic Systems Modeling and Global Climate

Chemistry 210 – Structure and Reactivity of Molecules

Chemistry 211 – Quantitative Analytical Chemistry

Chemistry 260 – Physical Chemistry for the Biological Sciences

Chemistry 261 - Thermodynamics, Kinetics and Statistics

Chemistry 262 – Quantum Mechanics and Spectroscopy
Chemistry 266, 267 – Physical Chemistry Laboratory
Chemistry 295B – Developments in Physical Chemistry
Chemistry 365 – Advanced Physical Chemistry: Angular Momentum in Chemistry
Chemistry 365 – Advanced Physical Chemistry: Atmospheric Chemistry
Chemistry 365 – Advanced Physical Chemistry: Statistical Thermodynamics, Entropy, and Kinetics
Chemistry 421 – Directed Individual Research
Chemistry 471 – Senior Thesis
Chemistry 493 – Honors Thesis

PROFESSIONAL EDUCATION AND TRAINING:

Atomic and Molecular Interactions Gordon Conference, Colby-Sawyer Collage, NH, 2000.
Atoms and Molecules Gordon Conference, RI, 2002.
Atmospheric Chemistry Gordon Conference, Big Sky, MT, 2003. NSF-CCLI: Invention and Impact Review, Cristal City, VA, 2004. Atmospheric Chemistry Gordon Conference, Big Sky, MT, 2005. Atmospheric Chemistry Gordon Conference, Big Sky, MT, 2007.
ACS National Meeting, New Orleans, LA, 2008 Introduction to System Dynamics, Cambridge, MA, 2009
Advanced Sysposium on Topics in Vensim, Cambridge, MA, 2009 Atmospheric Chemistry Gordon Conference, Waterville Valley, NH, 2009
NSF-CWCS Computational Chemistry for Chemistry Educators, San Jose, CA, 2010 CWCS workshop on Computational and Theoretical Chemistry, Salt Lake City, Utah, 2011 CCCE Computational Chemistry for Chemistry Educators, Lexington, VA, 2011
ACS National Meeting, Philadelphia, PA, 2012