

Abbreviated CV – January, 2021

Kevin W. Davies
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Florida Gulf Coast University
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Associate Professor
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Current:

Florida Gulf Coast University Fort Myers, FL

Assistant Professor, Department of Chemistry and Physics

Member: National Science Teachers Association

Research Activities: Development of molecules photoacoustic reporter molecules: will allow depth-resolved chemical measurements to be made in living tissues and other turbid media. Also identifying molecules for selective labeling of tissue features (e.g. tumors). Identification of the materials used to construct landmines, and how they age and break down once emplaced. Both of these projects have successfully utilized undergraduate researchers (31 to date) and resulted in research reports or manuscripts for publication

Areas of Expertise: Development of analytical instrumentation, particularly involving lasers, photoacoustics, and spectroscopic measurements; development of molecules for noninvasive imaging/remote detection of chemical parameters; environmental factors that interact with metals/polymers/explosives in emplaced landmines

Education:

University of Pittsburgh Pittsburgh, PA 2008

Ph.D. in Chemistry (Analytical Chemistry, Physical/Organic research)

University of Pittsburgh Pittsburgh, PA 2002

BS in Chemistry, Bioscience Concentration

Funding (awarded and submitted), Honors, and Awards:

FGCU Internal Award 2019 \$15,340

Acquisition of a Density Meter to Enhance Undergraduate Research and Education at FGCU
Greg McManus, Kevin W. Davies (PI)

Scholarship-Research Venture Capital Fund Award 2019 \$24,234

Acquisition of High-Performance Computation Servers for Computational Research and Education at FGCU

Nilesh Dhumal, John Reilly, Kevin Davies, Changjian Feng, Anna Koufakou, Xiangfei Zhang, Bei Cao, Luis Ceron, Yinghong Sheng

NIH R21 proposal Submitted, May-2018 \$306,215

Identification and development of Useful Photoacoustic Reporter Molecules

Davies, K. W. (PI), Boyce, G.

Not funded, but with positive preliminary reviews. Planed resubmission, May-2019.

FGCU Internal Award 2015 \$5000

Parker Hannifin 2014 \$7538

Development of a Training Program for Titration Measurements and Control of Process Baths in an Aerospace Metalworking Facility

Davies, K. W. (PI) and Adl, P.

FGCU Internal Grant 10147D 2011-12 \$5000

US Department of State Office of Weapons Removal and Abatement

2009-10 \$419,528 (two phases)

James Madison University, Dept. of Chem. and Biochem. and FGCU Dept. of Chem. and Math.

“Study of the Effects of Aging on Landmines, Phase 2, Year 1”, *D.J. Ressler*, A. Hartshorn, E.A.

Johnson, K. Davies, W.C. Hughes

Visiting Professor – NSF REU CHE-0754521 2007 \$3640

James Madison University, Dept. of Chem. and Biochem		
K-12/ASSET Inc. Fellow	2007-08	\$30,000/yr
University of Pittsburgh		
Ashe Award for Outstanding Service to the Department of Chemistry		
University of Pittsburgh, Dept. of Chemistry	2007	\$3640
NSF GK-12 Graduate Teaching Fellow	2004-07	\$30,000/yr
University of Pittsburgh		

Publications:

Peer-reviewed:

- Davies, K. W.**, The Efficacy of Flipped Laboratory Multiperspective Videos in Skill Acquisition, J. Coll. Sci. Teaching, 49(2) (Nov. 2020), 62-67.
- J. E. Brown, L. Diaz, T. Christoff-Tempesta, K. M. Nesbitt, J. Reed-Betts, J. Sanchez, **K. W. Davies**, Characterization of Nitrazine Yellow as a Photoacoustically-active pH Reporter Molecule, Anal. Chem., 87(7) (2015), 3623-3630.
- Davies, K. W.**, Maivald, D., Grabowski, J. J. A Photoacoustic Calorimetric Characterization of the Reaction Enthalpy and Volume for the Preparation of a Reactive Intermediate from CpMn(CO)₃. J. Photochem. Photobiol., A, 197 (2008) 335-341.

Other:

- Davies, K. W.**, Flipping Analytical Chemistry : A Course Redesign of a Redesigned Course, Invited article, FlippedChemistry.com, Jun. 2015 accepted, Jun. 2015 published
- Davies, K. W.**, Teaching Lab Techniques with Multi-perspective Video, Invited article, FlippedChemistry.com, Dec. 2014 accepted, Jan. 2015 published
- Davies, K. W.**, A Course Redesign for General Chemistry, Invited article, FlippedChemistry.com, June 2014 accepted, Aug. 2014 published
- Hartshorn, A. S., Vallotton, J. D., Ressler, D. J., Johnson, E. A., **Davies, K. W.**, Estes, E. J., Cabaniss, K. A., King, C. S., Scoping Study on the Effects of Aging on Landmines Phase 2, Submitted to the US Department of State, Bureau of Political-Military Affairs, Office of Weapons Removal and Abatement (PM/WRA), 2011. Published at:
http://www.jmu.edu/cisr/research/aging/aging_intro.html
- Cabaniss, K., **Davies, K. W.** Identification of Components Harvested from Degraded Emplaced Landmines, Formal report submitted to JMU-MAIC, Aug. 2009
- Estes, E., **Davies, K. W.** Identification of Components Harvested from Degraded Emplaced Landmines – Phase II Project Report, Formal report submitted to JMU-MAIC, Sept. 2010

Selected Presentations:

- Roche, B., Doles, N., Felden, M., Rhodes, L., **Davies, K. W.**, Liao, J., Macroporous Scaffolds and Light Therapy for Osteogenic Differentiation of Human Adipose Stem Cells, Biomedical Engineering Society (BMES) Annual Meeting, October 16-19, 2019
- Davies, K. W.**, “Chemical Sensing via the Photoacoustic Effect: Developing Chemical Reporters that Permit Non-invasive, Standoff, and/or Remote Sensing”, SOFL-ACS Meeting, Feb-21-2019.
- Thomas, B., **Davies, K.**, Paikoff, S., Staussberger, T., Bacalzo, D., Evers, C., “Building a New Community: Students and Faculty as Partners in Education”, Southwest Florida Symposium on Teaching and Learning, Jan-22-23 2019.
- Davies, K. W.**, “Multiperspective Views in Teaching Laboratory Techniques”, SciX, Invited Talk, Sept-28, 2015.
- Davies, K. W.**, A pH Reporter Molecule for Measurements and 3D Imaging in Turbid Media, SciX, Presented Poster, Sept-30, 2015.
- Christoff-Tempesta, T., **Davies, K. W.**, Ph. D, Characterization of Inexpensive and Nontoxic Laser Dyes with High-Energy Wavelength Tunability, Poster, FGCU Research Day, April 2014.

Christoff-Tempesta, T., Diaz, L., Brown, J., Nesbitt, K., Sanchez, J., Reed-Betts, J., **Davies, K. W.**, Ph. D, The Characterization of Nitrazine Yellow as a Photoacoustically Active pH Indicator Dye, Poster, Life Sciences of South Florida Conference, April 2014.

Davies, Kevin W., Lecture and Office Hours At-Home, (part of) Homework In-class: A Flipped Chemistry Classroom at the Intro and Advanced Topic Levels, Flipped Classroom Learning Community, FGCU, Mar-18, 2014.

Davies, Kevin W., The Photoacoustic Effect: Using Light to Play 'Marco – Polo' in Biomedical Imaging, Invited Talk, Ave Maria University Chemistry Department, 2013.

Davies, Kevin W., The Photoacoustic Effect: Using Light to Play 'Marco – Polo' in Biomedical Imaging, FGCU Chemistry Club Seminar, 2012.

Hartshorn, Tony, Vallotton, Jeremiah D, Johnson, Elizabeth A., **Davies, Kevin W.**, Ressler, Daniele J., and King, Colin C., A Pedological Approach To Landmine Aging, Presentation, Geological Society of America Annual Meeting, 2010.

Hartshorn, A. S., Vallotton, J. D., Ressler, D. J., Johnson, E. A., **Davies, K. W.**, Estes, E. J., Cabaniss, K. A., King, C. S., Deciphering Landscapes of Fear: A Pedological Approach to Landmine Aging, Poster, Geological Society of America Annual Meeting, 2010.

Vallotton, J. D., Hartshorn, A. S., Ressler, D. J., Johnson, E. A., **Davies, K. W.**, Estes, E. J., Cabaniss, K. A., King, C. S., Specters of Destruction: Aging Landmine Functionality, Poster, Strategic Environmental Research and Development Program/ Environmental Security Technology Certification Program (SERDP/ESTCP) Annual Symposium, 2010.

Nesbitt, K. M., **Davies, K. W.**, Identification of Photoacoustically Active Imaging Dyes and Indicators, Pittcon, Presented Poster, 2010.

Nesbitt, K. M., **Davies, K. W.**, Nitrazine Yellow as a Photoacoustic pH Reporter Molecule, University of Maryland, Baltimore County Chemical and Biochemical Research Symposium, Presented Poster, 2009.

Davies, K. W. Applications of the Photoacoustic Effect in Physical/Organic Measurements and Biomedical Imaging, James Madison University, Seminar, 2009

Adams, C., Emmett, S., **Davies, K. W.**, Science: It's Elementary, Content Deepening 2 Day Workshop (FOSS: Mixtures and Solutions), Scranton, PA, 2007 (outside evaluator: Horizon Research, Inc., Durham, N. C.). (*This workshop was used as ASSET, Inc.'s model for future statewide professional development workshops.*)

Davies, K. W., Ramsooksingh, M. D., Jones, C., Integrating Technological Approaches to Science Education into the 1st - 8th Grade Classroom, NSF GK-12 National Meeting, Presented Poster, 2007.

Rossmann, T., **Davies, K. W.**, Creating Sustainability through an Outreach Project, NSF GK-12 National Meeting, Presented Poster, 2006.

Science Education Experience: (graduate-level classes marked with *)

Florida Gulf Coast University Fort Myers, FL 2010-Current

General Chemistry I + lab – CHM1045 and CHM1045L (3 cr. + 1 cr.)

Analytical Chemistry and Lab – CHM3120c (4 cr.), CHM3120 (3 cr.) and CHM3120L (1 cr.)

Instrumental Analysis and Lab – CHM4130 (3 cr.) and 4130L (1 cr.)

Senior Capstone Course- Chemistry (1 cr.) – team-taught course to prepare graduating majors for Chem GRE subject exam.

Lasers in Physical Science – CHM 4174C (4 cr.) – new course for FGCU first taught Fall-2018.

Submitted through FGCU Curriculum committees, and State approval. Practical theory and applications of lasers in physical sciences.

James Madison University Harrisonburg, VA 2008-2010

General Chemistry I + lab (3 cr + 1 cr.) – utilized weekly small-group workshop into lecture to utilize peer-instruction (similar to team-based learning)

Physical Chemistry Lab II (1 cr.) – developed photoacoustic calorimetry experiment for this lab, emphasized experimental p. chem. methods and instrumentation

Advanced General Chemistry Lab II (2 cr.) – More intensive laboratory course designed for science-majors, team-taught with Dr. Thomas Devore

Instructional Experience in General Chemistry (1-2 cr.) – Course for students who plan to pursue a career in science education, students serve as peer-leader mentors for Gen. Chem. I workshop sessions and learn to facilitate guided problem solving

Numerical Methods in Chemistry (1 cr.) – Upper level majors course introducing the application of computing to chemical problems – wrote comp. chem. workshops

Applications of Lasers in Experimental Science (3 cr.) – team-taught with Dr. Ben DeGraff (emeritus, JMU), combination lecture/lab course dealing with practical theory and applications of lasers in variety of experimental uses (e.g. confocal microscopy, photoacoustic measurements, laser-induced fluorimetry)

University of Pittsburgh **Pittsburgh, PA** **2002-2008**

* *Dept. of Instruction and Learning, School of Ed.* **Spring 2008**

Technology in Science Education (3 cr.) – Designed syllabus to provide an opportunity for pre-service secondary science teachers to explore how technology can meaningfully add to the teaching of science

Dept. of Chemistry **Summer 2007**

Analytical Chemistry (3 cr.)

Analytical Chemistry Lab (1 cr.) **2005, 2007**

Major Service Activities

Pearson Publishing invited panelist – “Teaching with Technology Mastering Summit”, Oct-4-5, 2018.
Reviewer for 2 international journals related to analytical chemistry and chemical sensing (Impact factor 5.667 and 6.320).

NSF grant proposal reviewer in STEM Education program, July 2012.

Faculty Advisory Board, Macmillan Publishing for Chemistry/STEM teaching material.

Chair, Institutional Safety Committee, FGCU.

Professional Development Activities:

Course Design Academy, FGCU Teaching, Learning & Assessment Initiative, May 14-30, 2013.

The Flipped Classroom, Whitaker Center, FGCU, Feb. 15, 2013.

Initiating and Sustaining Undergraduate Research Programs, CUR Institute, University of Portland, May 25-27, 2011.

Writing Successful Grant Proposals: Professional Grant Development Workshop, Grant Training Center, James Madison University, May 11-13, 2010.

Computational Chemistry for Chemical Educators, National Computational Science Institute, Oklahoma State University, May 17-23, 2009.

NSF Grant Panel, Biosci Directorate, College of William and Mary, June 2, 2010.

POGIL Workshop, James Madison University, October 1, 2009.

Pittcon, Analytical Chemistry Conference, Orlando, FL, February 28 – March 5, 2010.

238th ACS Fall National Meeting, Washington, DC, August 16-20, 2009.