



# SoFlacs



Vol. 31, No. 1

South Florida Section American Chemical Society

February 2021

## Virtual Section Meeting

Friday, February 12, 4:00 PM

Join via Zoom Meeting

<https://american-chemical-society.zoom.com/j/81988177169>



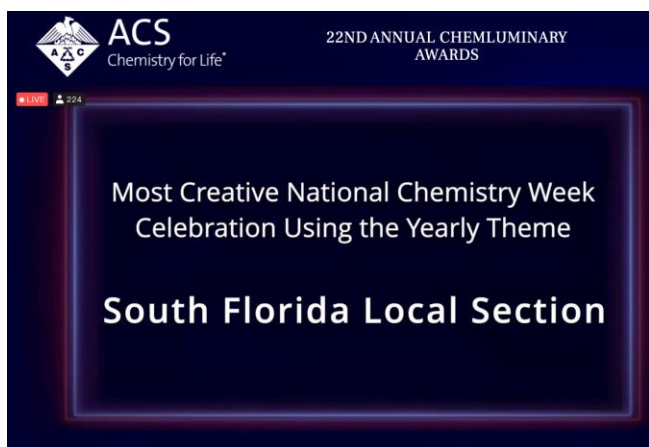
## Kevin Davies, PhD

Department of Chemistry & Physics  
Florida Gulf Coast University

## Chemical Sensing via the Photoacoustic Effect - Practical Aspects to Identifying Reporter Molecules for Sensing Applications

Many samples that are of chemical interest present challenges for measurements when performed in direct sample contact (electrode fouling in biological samples, invasive probes in living tissues, turbid samples in a spectrometer, etc.) Our research group is identifying reporter molecules that permit remove/standoff measurements to be done from outside the sample by using the photoacoustic effect to non-invasively measure samples. This talk will discuss the unique advantages brought by using photoacoustics, challenges that must be considered, and unique analyses that can leverage these 'strengths and weaknesses', leading to the ability to perform spatially-resolved 3d chemical sensing non-invasively. We will also consider recent modifications to our instrument that should provide more streamlined and robust photoacoustic measurements.

Kevin Davies received his Ph.D. in chemistry from The University of Pittsburgh, where he studied the use of the photoacoustic effect to probe photoinitiated reactions. He has since adapted these methods to develop and identify molecules that serve as effective biomedical imaging reporter molecules and allow chemical sensing to occur in cloudy solutions and substances. As an analytical chemist, he is interested in a wide range of chemical measurement issues, and has developed training systems for Fortune 500 companies, harvested emplaced landmines in Cambodia and examined their composition and how they degrade in contact with soils, and published work in chemical education pertaining to better ways to train students and employees in performing chemical measurements. Dr. Davies was a Visiting Assistant Professor at James Madison University, where he did the landmine research and started collecting photoacoustic data, before coming to FGCU in August 2010. In teaching, Dr. Davies uses "flipped classroom" and "active learning" strategies in his courses and publishes research in these methodologies. He centers his teaching in the General and Analytical Chemistry components of the curriculum.



## SoFL-ACS ChemLuminary Award

SoFL-ACS won a ChemLuminary award for our 2019 National Chemistry Week outreach of presenting chem demos and hands-on activities on the theme "Marvelous Metals". Presentations were made at the Ft. Lauderdale Museum of Discovery and Science and at the Miami Frost Science Museum. Our community outreach efforts were enjoyed by over 2500 children and adults attending the museums. Presentations were made by ACS Student Chapters/university Chem Clubs at Barry University, Florida Atlantic University, Florida International University-Biscayne Bay campus, Florida International University-main campus, St. Thomas University, and University of Miami. Thank you to all the student, faculty, and SoFL-ACS volunteers.

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*Softacs*, the publication of the South Florida Section, American Chemical Society, is published periodically.  
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