

MIXTLI CAMPOS PINEDA

Centre for Research into Atmospheric Chemistry. University College Cork. IRELAND ·

+353 (89) 480 5232

mcampos@ucc.ie · https://www.researchgate.net/profile/Mixtli_Campos-Pineda

Postdoctoral researcher at the Centre for Research into Atmospheric Chemistry (CRAC) at University College Cork. I work on the development of optical cavities (Cavity Enhanced Absorption Spectroscopy and Cavity Ring-Down Spectroscopy) for the new Irish Atmospheric Simulation Chamber. The instruments will be used to study kinetics and mechanisms of VOC oxidation under atmospheric conditions. Previous work involved satellite data analysis, construction of CEAS instruments, R2PI-VMI studies of vibrational predissociation dynamics, computations of excitation energies using QChem, and study of ozonolysis of alkenes using CRDS.

EXPERIENCE

APRIL 2022 (CURRENT)

POSTDOCTORAL RESEARCHER, CENTRE FOR RESEARCH INTO ATMOSPHERIC CHEMISTRY. UNIVERSITY COLLEGE CORK, IRELAND.

Development of optical cavities (CEAS and CRDS) for the Irish Atmospheric Simulation Chamber (IASC) for the study of VOC oxidation.

MARCH 2020 – FEBRUARY 2022

POSTDOCTORAL RESEARCHER, CENTER FOR ATMOSPHERIC SCIENCES. UNAM

Python and Julia code development for satellite data analysis and the construction of CEAS instruments for glyoxal measurements in the Metropolitan Area of the Valley of Mexico.

JANUARY 2019 – JANUARY 2020

POSTDOCTORAL RESEARCHER, UNIVERSITY OF SOUTHERN CALIFORNIA

Study of hydrogen bond pair-correlated energies of aromatic molecules with water using Velocity Map Imaging.

FEBRUARY 2018 – DECEMBER 2018

ASSISTANT PROJECT SCIENTIST, UNIVERSITY OF CALIFORNIA, RIVERSIDE.

Mechanistic studies of vinyloxy radicals produced from 2-butenes. Indirect determination of branching ratios of syn and anti conformers of acetaldehyde oxide produced from ozonolysis of 2-butenes.

JANUARY 2011 – AUGUST 2011

RESEARCH ASSISTANT, ITESM MONTERREY.

Thermogravimetric and calorimetric analysis of freeze dried lysozyme.

EDUCATION

DECEMBER 2017

PHD IN PHYSICAL CHEMISTRY, UNIVERSITY OF CALIFORNIA, RIVERSIDE

Dissertation: Direct measurements and kinetics of reaction intermediates in the ozonolysis of alkenes using cavity ringdown spectroscopy.

DECEMBER 2010

M.SC. IN ENVIRONMENTAL SYSTEMS, ITESM MONTERREY

Kinetic studies of diesel biodegradation using a packed bed biofilm reactor.

DECEMBER 2008

B.S. IN CHEMISTRY, ITESM MONTERREY

Undergraduate thesis: Study of control parameters for the synthesis of colloidal Ag nanoparticles.

SKILLS

- Cavity ring-down spectroscopy, Cavity enhanced spectroscopy,
- High Vacuum, REMPI, Velocity Map Imaging,
- Kinetic modelling, Plug flow and packed bed reactors, Gas flow systems,
- Dye lasers, Nd:YAG pulsed lasers, Diode cw-lasers, OPA/OPO lasers,
- QChem 5.1. Open- and closed-shell energy and ionization potential calculations of water clusters,
- MATLAB, FORTRAN, C++, Python and Julia.
- Design of optical cavities using FreeCAD
- Languages: English, Spanish, French.

AWARDS

2020 – National System of Researchers (Level 1)

PUBLICATIONS

- Xinguang Cui, Sally Newman, Xiaomei Xu, Arlyn E. Andrews, John Miller, Scott Lehman, Seongeun Jeong, Jingsong Zhan, Chad Priest, **Mixtli Campos-Pineda**, Kevin R. Gurney, Heather Graven, John Southon, Marc L. Fischer. Atmospheric observation-based estimation of fossil fuel CO₂ emissions from regions of central and southern California. *Science of The Total Environment* 05/2019; 664., DOI:10.1016/j.scitotenv.2019.01.081
- Mixtli Campos-Pineda**, Jingsong Zhang: Product yields of stabilized Criegee intermediates in the ozonolysis reactions of cis-2-butene, 2-methyl-2-butene, cyclopentene, and cyclohexene. *Science China-Chemistry* 05/2018, DOI:10.1007/s11426-017-9229-0
- Seongeun Jeong, Sally Newman, Jingsong Zhang, Arlyn E. Andrews, Laura Bianco, Ed Dlugokencky, Justin Bagley, Xinguang Cui, Chad Priest, **Mixtli Campos-Pineda**, Marc L. Fischer: Inverse Estimation of an Annual Cycle of California's Nitrous Oxide Emissions. *Journal of Geophysical Research Atmospheres* 04/2018, DOI:10.1029/2017JD028166
- Mixtli Campos-Pineda**, Jingsong Zhang: Low-pressure yields of stabilized Criegee intermediates CH₃CHO and (CH₃)₂COO in ozonolysis of trans-2-butene and 2,3-dimethyl-2-butene. *Chemical Physics Letters* 04/2017; 683., DOI:10.1016/j.cplett. 2017.04.089
- Justin E. Bagley, Seongeun Jeong, Xinguang Cui, Sally Newman, Jingsong Zhang, Chad Priest, **Mixtli Campos-Pineda**, Arlyn E. Andrews, Laura Bianco, Matthew Lloyd, Neil Lareau, Craig Clements, Marc L. Fischer: Assessment of an atmospheric transport model for annual inverse estimates of California greenhouse gas emissions. *Journal of Geophysical Research Atmospheres* 02/2017; 122(3), DOI:10.1002/2016JD025361

Seongeun Jeong, Sally Newman, Jingsong Zhang, Arlyn E. Andrews, Laura Bianco, Justin Bagley, Xinguang Cui, Heather Graven, Jooil Kim, Peter Salameh, Brian W. LaFranchi, Chad Priest, **Mixtli Campos-Pineda**, Elena Novakovskaia, Christopher D. Sloop, Hope A. Michelsen, Ray P. Bambha, Ray F. Weiss, Ralph Keeling, Marc L. Fischer: Estimating methane emissions in California's urban and rural regions using multi-tower observations: Methane emissions in California. *Journal of Geophysical Research Atmospheres* 10/2016; 121(21)., DOI:10.1002/2016JD025404

Mixtli Campos-Pineda, Karim Acuna-Askar, Jesus Alberto Martinez-Guel, Marcela Mas-Trevino, Rolando Tijerina-Menchaca, Luz Maria Martinez, Marcelo Videia, Roberto Parra-Saldivar: Time and cost efficient biodegradation of diesel in a continuous-upflow packed bed biofilm reactor and effect of surfactant GAELE. *Journal of Chemical Technology & Biotechnology* 08/2012; 87(8):1131., DOI:10.1002/jctb.3736

MANUSCRIPTS IN PREPARATION

Mixtli Campos-Pineda, Jingsong Zhang. *Direct measurement and kinetic study of CH₂OO produced from ozonolysis of ethene*. In preparation.

Mixtli Campos-Pienda, Jingsong Zhang. *Direct measurements of ·CH₂CHO and HCHO from ozonolysis of cis- and trans-2-butene*. In preparation.

Mixtli Campos-Pienda, Jingsong Zhang. *Measurement of the branching ratio of syn- and anti-CH₃CHOO from ozonolysis of 2-butenes*. In preparation.

CONTRIBUTED POSTERS AND TALKS

Contributed talk: *Direct measurements of vinoxy radicals and formaldehyde from ozonolysis of trans- and cis-2-butenes: Quantification of syn- and anti-conformers of Criegee intermediate and new insights into OH radical formation mechanism*.. Atmospheric Chemical Mechanisms (ACM). University of California, Davis. 2020.

Contributed poster: *Low pressure yields of stabilized Criegee intermediates produced from ozonolysis of a series of alkenes*. Atmospheric Chemical Mechanisms (ACM). University of California, Davis. 2018.

Contributed talk: *Direct Measurements of Vinoxy Radicals And Formaldehyde From Ozonolysis Of Trans- And Cis-2-Butenes: New Insights Into OH Radical Formation And Secondary Chemistry*. Atmospheric Chemical Mechanisms (ACM). University of California, Davis. 2018.

Contributed poster: *Low pressure yields of stabilized Criegee intermediates produced from ozonolysis of a series of alkenes*. 35th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (ISKPPA). California Institute of Technology. 2018.

Contributed talk: *Direct Measurements of Vinoxy Radicals From Ozonolysis of cis- and trans-2-Butene Using Cavity Ring-down Spectroscopy*. Pacific Conference on Spectroscopy and Dynamics. San Diego, California. 2018.

Contributed talk: *New insights into the ozonolysis reactions of trans- and cis-2-butene: Detection and measurements of vinoxy radical and formaldehyde*. 34th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (ISKPPA). University of California, San Diego. 2017.

Contributed poster: *Study of the Ozonolysis of 2,3-Dimethyl-2-Butene and trans-2-Butene Using Cavity Ringdown Spectroscopy*. Atmospheric Chemical Mechanisms (ACM). University of California, Davis. 2016

Contributed talk: *Low pressure yields of stabilized Criegee intermediates produced from ozonolysis of trans-2-butene and 2,3-dimethyl-2-butene*. Fall 2016 Philadelphia ACS National Meeting. Division of Physical Chemistry. Philadelphia. 2016.

Contributed poster: *Study of the Ozonolysis of 2,3-Dimethyl-2-Butene and trans-2-Butene Using Cavity Ringdown Spectroscopy*. 33th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (ISKPPA). University of California, Irvine. 2016

Contributed poster: *Study of the Ozonolysis of 2,3-Dimethyl-2-Butene Using Cavity Ring-down Spectroscopy*. 11th International User Meeting and Summer School on Cavity Enhanced Spectroscopy (CES 2015). Boulder, Colorado. 2015.

Contributed poster: *Study of the Ozonolysis of 2,3-Dimethyl-2-Butene Using Cavity Ring-down Spectroscopy*. 32th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (ISKPPA). California State University, Northridge. 2015.

Contributed poster: *Studying Ozonolysis Reaction of 2-Butenes Using Cavity Ring-Down Spectroscopy*. Atmospheric Chemical Mechanisms (ACM). University of California, Davis. 2014.

OTHER ACTIVITIES AND COMMUNITY OUTREACH

Undergraduate research mentor (2015 - 2017). Trained and advised undergraduate students on independent projects involving measurements of HONO and NO₂ using cavity enhanced absorption spectroscopy (CEAS).

ACS Project SEED Program (2014 - 2016). Mentored project SEED students in research involving XRF analysis of field soil samples and cavity enhanced techniques.

RIMS Inland Science and Engineering Fair (2014 - 2018). Served as judge for the community award: "Outstanding work in atmospheric science".