

## **CURRICULUM VITAE**

Updated July 2020

**Dr. Karin Y. Chumbimuni-Torres**  
Chemistry Department

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407-8232230

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### **EDUCATION**

- 2007      **Ph.D. in Chemistry**  
University of Campinas, Sao Paulo, Brazil.  
Advisor: Lauro Tatsuo Kubota
- 2001      **M.Sc. in Chemistry**  
University of Campinas, Sao Paulo, Brazil.
- 1997      **B.S. in Chemistry**  
National University of Engineering, Lima, Peru.

### **PROFESSIONAL EMPLOYMENT**

- 2018-present      **Associate Professor**  
Chemistry Department, University of Central Florida, Orlando, FL
- 2012-2018      **Assistant Professor**  
Chemistry Department, University of Central Florida, Orlando, FL
- 2010-2012      **Research Associate II**  
Department of Chemistry, The University of Texas at San Antonio, Texas, TX
- 2008-2010      **Postdoctoral Research Associate**  
Nanoengineering Department, University of California at San Diego
- 2007-2008      **Postdoctoral Research Associate**  
Department of Chemistry, Purdue University

### **HONORS AND AWARDS**

- 2020      Excellence in Undergraduate Teaching – University Level – University of Central Florida
- 2020      Excellence in Undergraduate Teaching – College Level – University of Central Florida.
- 2019      Life and Faculty of Excellence Award for “Positively Transforming the Lives of Students”.
- 2019      Women’s History Month Recognition 2019. Faculty of Excellence-UCF Recognition.
- 2018      The 2017-2018 Research Incentive Award (RIA) University of Central Florida. RIA rewards outstanding achievements in research, scholarly and creative activities.
- 2018      The 2017-2018 Teaching Incentive Award (TIP) University of Central Florida. TIP recognizes teaching productivity and excellence.
- 2017      Excellence in Undergraduate Teaching by College of Science – University of Central Florida
- 2015      Outstanding Four-Year College Teacher by The American Chemical Society - Orlando Section.
- 2015      Nomination as Mentor of the Year at University of Central Florida.
- 2007      Visiting Postdoctoral Associate. Biodesign Institute, Arizona State University, AZ
- 2005      International Academic Exchange Program (Sao Paulo Research Foundation (FAPESP)).  
Chemistry Department. Auburn University, Alabama.
- 2002-2006      Scholarship from Sao Paulo Research Foundation (FAPESP), at University of Campinas, San Paulo, Brazil.
- 1999-2001      Scholarship from Coordination of Improvement of Higher Education Personnel (CAPES), at University of Campinas, Sao Paulo, Brazil.

### **GRANT SUPPORT AND INTERNATIONAL AGREEMENTS**

#### **RESEARCH GRANTS**

## Karin Y. Chumbimuni-Torres

- 2019-2020 **National Science Foundation.** (PI) Supplemental grant “A Universal Nucleic Acid Recognition Platform for Detection of Pathogenic Bacteria. 100% (Total award \$ 9,355).
- 2017-2020 **National Science Foundation.** (PI) A Universal Nucleic Acid Recognition Platform for Detection of Pathogenic Bacteria. 80% (Total award \$ 199,950).
- 2018-2019 **National Science Foundation.** (PI) Supplemental grant “A Universal Nucleic Acid Recognition Platform for Detection of Pathogenic Bacteria. 100% (Total award \$ 9,130).
- 2017-2019 **Florida Department of Health.** (PI) A Universal Nucleic Acid Recognition Platform for Detection of Zika Virus. 75% (total award \$ 198,875).
- 2018-2019 **100Strong in America.** (PI) Internationalization Program for STEM students through Learning and Research Experiences. \$25,000.
- 2016-2018 **United States Department of Agriculture.** NIFA CoFE: Multifunctional Surface/Sub-Surface/Systemic Therapeutic (CoE: MS3T) Technology for HLB Management. Co-PI, 15%, (total award \$ 1.9 Million).
- 2014-2016 **Innovation, Science and Technology Grant (FINCyT).** ‘Development of enzymatic and biomimetic electrochemical sensors with nanoporous polymer matrices for the determination of pesticide residues in environmental samples and agricultural products’ Co-PI, in kind (total award \$160,000)
- 2013-2017 **Marie Curie Actions-International Research Staff Exchange Scheme/IRSES-Europe Commission** (FP7-PEOPLE-2013-IRSES). ‘Network for Sensor Knowledge Transfer’ Co-PI, in kind (total award €279,300).
- 2014-2016 **University of Central Florida,** In House Grant. ‘Development of light-based activatable ion-sensing optodes to study the influence of ions in cancer cells’. PI, 100% \$7,500.
- 2013-2015 **College of Science and Office of Research and Commercialization SEED Grant.** ‘Portable and Novel Electrochemical Sensors for Genotyping Archeological Samples’. PI, 80% 19,135, (total award \$25,000).
- 2013 **University of Central Florida,** In House Award. Acquisition of a Liquid Chromatography Mass Spectrometry (LC-MS) Instrument. (Co-PI) (total awarded \$199,995).

### OTHER RELATED GRANTS FUNDED

- 2019 COACHE Faculty Development Mini-Grant “Recognition of faculty accomplishments and mentoring program towards increasing the number of awards obtaining by Chemistry faculty at all Levels”. \$2,500 (Faculty Excellence).
- 2019 Travel award from National University of Engineering to give a talk at ECITEC-International Encounter of Science and Tehcnology. Lima, Peru. November 6<sup>th</sup>.
- 2018 Travel award from Chemistry Department to assistant to the Peruvian Ambassador Home to receive a recognition.
- 2018 Travel award to present at Sunshine State Teaching and Learning Conference (\$600) by UCF.
- 2018 Faculty travel grant to give oral presentation at Iberoamerican Electrochemistry Conference SIBAE 2018, Cuzco-Peru. College of Science and Chemistry Department. \$500
- 2017 Spring ACS COACH Workshop. “COACHing Strong Women in the Art of Strategic Performance” Oregon University, \$1,000.
- 2017 Implementing COACH approach at Analytical Chemistry Class (CHM 3120). \$900 by UCF-QEP (Quality Enhancement Plan).
- 2016 Faculty travel grant to give oral presentation at National Conference Pittcon 2017, College of Science and Chemistry Department, \$500.
- 2016 Undergraduate Research Initiative (URI), funds were obtained in \$2,080 from Office of Research & Commercialization.
- 2016 Faculty travel grant to visit NSF. Office Research and Commercialization-UCF \$1,000.
- 2016 Faculty travel grant to give oral presentation at National Conference Pittcon 2016, College of Science and Chemistry Department. \$500.
- 2015 Faculty travel grant to give oral presentation at National Conference Pittcon 2015. College of Science and Chemistry Department. \$500.
- 2013 Faculty-Meet your program officer. College of Science/Office of Research and Commercialization/Chemistry Department. \$1,500.

## Karin Y. Chumbimuni-Torres

### COLLABORATIONS

#### International

- Aleksandar Radu (Keele University, England)
- Christian Jutten (Institut Universitaire de France, France)
- Reza M. Nejadnik (Leiden University, Netherlands)
- Stéphane Aloïse (University of Lille, France)
- Lauro T. Kubota (University of Campinas, UNICAMP, Brazil)
- Yu Qin (Nanjing University, China)
- Emanuel Carrilho (University of São Paulo at São Carlos, Brazil)
- Fernando Benito-Lopez (Universidad del Pais Vasco, Spain)
- Leonardo T. Duarte (University of Campinas, UNICAMP, Brazil)

#### National:

- Hyoung Jin Cho (Mechanical and Aerospace Engineering, UCF)
- Dmitry Kolpashchikov (NCFS & Department of Chemistry, UCF)
- Swadeshmukul Santra (NSTC, Department of Chemistry, Department of Materials Science and Engineering and Burnett School of Biomedical Sciences)
- Tosha L. Dupras (Department of Anthropology)
- Griffith Parks (Burnett School of Biomedical Sciences, UCF)
- Florencio Hernandez (Department of Chemistry & CREOL, UCF)
- Woo Hyoung Lee (Civil, Environmental, and Construction Engineering, UCF)
- Mathew Rex (Department of Chemistry, UCF)
- Emily C. Heider (Department of Chemistry, UCF)
- Richard G. Blair (Department of Physics, UCF)
- Andres. D. Campiglia (Department of Chemistry, UCF)
- Steven J. Duranceau (Environmental Engineering, UCF)
- Bonnie Swan (College of Education and Human Performance)
- Adelp M. Mfuh (University of Texas San Antonio, UTSA)

### PEER-REVIEWED JOURNAL ARTICLES

Google Scholar Index: Total articles 39, total citations 1,058 (661 after appointment at UCF), H-Index 17 and i10-index 20. According Google Scholar.

After my appointment at UCF I obtained 16 publications, two conference proceedings, one book chapter, a book edit, and two patent applications proposals. I am the corresponding author (indicated in bold) of eleven peer reviewed papers and two conference proceedings. **Undergraduate student co-authors are highlight with red and PhD student co-authors are highlight with blue color.**

- Foguel M. V., **Balcarcel, A. M.**, **Reed M. A.**, Calvo-Marzal P., Gerasimova, Y. V. Kolpashchikov D. M., **Chumbimuni-Torres K.** (2020) MVF sensor enables analysis of nucleic acids with stable secondary structures. *Electroanalysis*. 32, 1-8.
- **Lynch, A. C. III**, Foguel V. M., **Reed A. J.**, **Balcarcel, A. M.**, Calvo-Marzal P., Gerasimova, Y. V., **Chumbimuni-Torres K.** (2019) Selective Determination of Isothermally Amplified Zika Virus RNA Using a Universal DNA-Hairpin Probe in Less than 1 Hour. *Anal. Chem.* 21, 12458-13464.
- **Mills D. M.**, Foguel V. M., **Martin C. P.**, **Trieu T. T.**, Kamar O., Calvo-Marzal P., Kolpashchikov D. M., **Chumbimuni-Torres K.** (2019) Rapid detection of different DNA analytes using a single electrochemical sensor. *Sens. And Actuators B.* 293, 11-15.
- **Lozano Untiveros, K.**, Caxico de Abreu, F., Ferreira da Silva-Júnior, E., Xavier de Araújo-Junior, J., Mendonça de Aquino, T., **Armas, S.**, Lima, S., Olímpio de Moura, R., Mendonça-Junior, F., **Chumbimuni-Torres, K.** (2019) An Electrochemical Biosensor based on Hairpin-DNA modified gold electrode for detection of DNA damage. *Biosensors and Bioelectronics*. 133, 160-168.
- **Patel, P.**, **Gongora, R.**, **Arias, J.** Hernandez, F. \***Chumbimuni-Torres, K. Y.** (2018). Synchronized Fluorescence and pH Modulation via Photoswitchable Metastable-state Photoacid using visible light. *Physical Chemistry Chemical Physics*. 42 (14), 26804-26808. Cover (26789-27228) and hot paper.

## Karin Y. Chumbimuni-Torres

- Ma, X., Armas, S., Soliman, M., Darren, L., Tetard, L., **Chumbimuni-Torres, K.**, Lee, W. H. (2018) In situ monitoring of Pb<sup>2+</sup> leaching from the galvanic joint surface in prepared chlorinated drinking water. *Environ. Sci. Technol.*, 52(4), 2126-2133.
- Mills, D., Martin, C. P., Calvo-Marzal, P., Kolpashchikov, **\*Chumbimuni-Torres, K.** (2018) A Universal and Label-Free Impedimetric Biosensing Platform for Discrimination of Single Nucleotide Substitutions in Long Acid Strands. *Biosens. Bioelectron.* 109, 35-42
- Armas, S., Mahan, A., Young, O., Calvo-Marzal, P., **\*Chumbimuni-Torres, K. Y.** (2018) Ready-To-Use Single-Strip Paper Based Sensor for Multiplex Ion Detection. *Sens. and Actuators B.* 255, 1781-1787.
- Church, J., Armas, S. M., Patel, P., **\*Chumbimuni-Torres, K. Y.**, Lee, W. H. (2017) Development and Characterization of Needle-Type Ion-Selective Microsensors for *in-situ* Determination of Foliar Uptake of Zn<sup>2+</sup> in Citrus Plants. *Electroanalysis.* 29, 1-8.
- Siddhanti, D. A., Nash, D., Navarro, M., Mills, D., Khaniya, A., Dhar, B., Kaden W. E. **Chumbimuni-Torres, K. Y.**, Blair R. G. (2017) The safer and scalable mechanochemical synthesis of edge chlorinated and fluorinated few-layer graphenes. *J. Mater. Science.* 52, 11977-87.
- Mills, D. M., Calvo-Marzal, P., Pinzon, J. M., Armas, S., Kolpashchikov, D. M., **\*Chumbimuni-Torres, K. Y.** (2017) A Single Electrochemical Probe Used for Analysis of Multiple Nucleic Acid Sequences. *Electroanalysis.* 29, 873-879.
- Rich, M., Mendecki, L., Mensah, S. T., Blanco-Martinez, E., Armas, S., Calvo-Marzal, P., Radu, A., **\*Chumbimuni-Torres, K. Y.** (2016) Circumventing Traditional Conditioning Protocols in Polymer Membrane-Based Ion-Selective Electrodes. *Anal. Chem.* 88, 8404-8408.
- Patel, P., **\*Chumbimuni-Torres, K. Y.** (2016) Visible light-induced ion-selective optodes based on a metastable photoacid for cation detection. *Analyst*, 141, 85-89.
- Patel, P., Johns, V., Mills, D. M., Boone, J. E., Calvo-Marzal, P., **\*Chumbimuni-Torres, K. Y.** (2015) Tuning the Equilibrium Response Time of Meta-Stable Photoacids in Ion-Sensors by Appropriate Functionalization. *Electroanalysis.* 27, 677-683.
- Johns, V., Patel, P., Hassett, S., Calvo-Marzal, P., Qin, Y. **\*Chumbimuni-Torres, K. Y.** (2014) Visible Light Activated Ion-Sensing using a Photoacid Polymer for Calcium Detection. *Anal. Chem.* 86, 6184-6187.
- Mensah, S., Gonzales, Y., Calvo-Marzal, P., **\*Chumbimuni-Torres, K. Y.** (2014) Nanomolar detection limits of Cd<sup>2+</sup>, Ag<sup>+</sup>, and K<sup>+</sup> using paper-strip-ion-selective electrodes. *Anal. Chem.* 86, 7269-7273.
- Duarte, L. T., Romano, J. M. T., Jutten, S., **Chumbimuni-Torres, K. Y.**, Kubota, L. T. (2014) Application of Blind Source Separation Methods to Ion-Selective Electrode Arrays in Flow-Injection Analysis. *IEEE Sensors J* 14 (7) 2228-2229.
- Heider, E. C., Trieu, K., Diaz, V. M., **Chumbimuni-Torres K. Y.**, Campiglia, A., D., Duranceau, S. J. (2013) An indium tin oxide electrode modified with gold nanorods for use in potential-controlled surface plasmon resonance studies. *Microchim. Acta*, 180, 1013-1020.
- **Chumbimuni-Torres, K.**, Coronado, R. E., Mfuh, A. M., Castro-Guerrero, C., Silva, M. F., Negrete, G. R., Bizios, R., Garcia, C. D. (2011) Adsorption of Proteins to thin-films of PDMS and its effect on the adhesion of human endothelial cells. *RSC Advances*, 1, 706-714.
- **Chumbimuni-Torres, K. Y.**, Wu, J., Clawson, C., Galik, M., Walter, A., Flechsig, G. U., Bakker, E., Zhang, L., Wang, J. (2010) Amplified potentiometric transduction of DNA hybridization using ion-loaded liposomes. *Analyst*, 135, 1618-1623.
- **Chumbimuni-Torres, K. Y.**, Thammakhet, Ch., Galik, M., Calvo-Marzal, P., Wu, J., Bakker E., Flechsig, G. U., Wang, J. (2009) High-Temperature Potentiometry: Modulated Response of Ion-Selective Electrodes during Heat Pulses. *Anal. Chem.*, 81, 10290-10294.
- Wu, J., **Chumbimuni-Torres, K. Y.**, Galik, M., Thammakhet, Ch., Haake, D., Wang, J. (2009) Potentiometric Detection of DNA Hybridization using Enzyme-Induced Metallization and a Silver Ion Selective Electrode. *Anal. Chem.*, 81, 10007-10012.
- **Chumbimuni-Torres, K. Y.**, Bakker, E., Wang, J. (2009) Real-time probing of the growth dynamics of nanoparticles using potentiometric ion-selective electrodes. *Electrochem. Commun.*, 11, 1964-1967.
- **Chumbimuni-Torres, K. Y.**, Calvo-Marzal, P., Wang, J. (2009) Comparison Between Potentiometric and Stripping Voltammetric Detection of Trace Metals: Measurements of Cadmium and Lead in the Presence of Thallium, Indium and Tin. *Electroanalysis*, 21, 1939-1943.

## Karin Y. Chumbimuni-Torres

- Mora, L., **Chumbimuni-Torres, K. Y.**, Clawson, C., Hernandez, L., Zhang, L., Wang, J. (2009) Real-time electrochemical monitoring of drug release from therapeutic nanoparticles. *J. Control. Release*, 140, 69-73.
- **Chumbimuni-Torres, K. Y.**, Wang, J. (2009) Nanoparticle-induced potentiometric biosensing of NADH at copper ion-selective electrodes. *Analyst*, 134, 1614-1617.
- **Chumbimuni-Torres, K. Y.**, Calvo-Marzal, P., Wang, J., Bakker, E. (2008) Electrochemical sample matrix elimination for trace level potentiometric detection with polymeric membrane ion-selective electrodes. *Anal. Chem.* 80, 6114-6118.
- Numnuam, A., **Chumbimuni-Torres, K. Y.**, Xiang, Y., Bash, R., Thavarungkul, P., Kanatharana, P., Pretsch, E., Wang, J., Bakker, E. (2008) Potentiometric detection of DNA hybridization. *J. Am. Chem. Soc.* 130, 410-411.
- Numnuam, A., **Chumbimuni-Torres, K. Y.**, Xiang, Y., Bash, R., Thavarungkul, P., Kanatharana, P., Pretsch, E., Wang, J., Bakker, E. (2008) Aptamer-based potentiometric measurements of proteins using ion-selective microelectrodes. *Anal. Chem.* 80, 707-712.
- Rubinova, N., **Chumbimuni-Torres, K. Y.**, Bakker, E. (2007) Solid-contact potentiometric polymer membrane microelectrodes for the detection of silver ions at the femtomole level. *Sensor and Actuators B* 121, 135-141.
- **Chumbimuni-Torres, K. Y.**, Rubinova, N., Radu, A., Kubota, L., Bakker, E. (2006) Solid contact potentiometric sensors for trace level measurements. *Anal. Chem.* 78, 1318-1322.
- **Chumbimuni-Torres, K. Y.**, Dai, Z., Rubinova, N., Xiang, Y., Pretsch, E., Wang, J., Bakker E. (2006) Potentiometric biosensing of proteins with ultrasensitive ion-selective microelectrodes and nanoparticles labels. *J. Am. Chem. Soc.* 128, 13676-13677.
- Calvo-Marzal, P., **Chumbimuni-Torres, K. Y.**, Fenalti, N., Kubota, L. (2006) Determination of glutathione in hemolysed erythrocyte with amperometric sensor based on TTF-TCNQ. *Clin. Chim. Acta* 371, 152-158.
- **Chumbimuni-Torres, K. Y.**, Kubota, L. (2006) Simultaneous determination of calcium and potassium in coconut water by a flow-injection method with tubular potentiometric sensors. *J. Food Comp. Anal.*, 19, 225-230.
- Calvo-Marzal, P., **Chumbimuni-Torres, K. Y.**, Fenalti, N., Oliveira Neto, G., Kubota, L. (2003) Determination of reduced glutathione using an amperometric carbon paste electrode chemically modified with TTF-TCNQ. *Sensor and Actuators B* 100, 333-340.
- **Chumbimuni-Torres, K. Y.**, Fenalti, N., Oliveira Neto, G., Kubota, L. (2002) Determination of calcium ion in biological fluid using flow injection analysis with a tubular electrode. *Lecta* 20, 37-46.
- **Chumbimuni-Torres, K. Y.**; Garcia, B. C., Fernandes, C. B. J., Oliveira Neto, G., Kubota, L. (2001) Use of self-plasticizing EVA membrane for potentiometric anion detection. *Talanta* 53, 807-814.

### REVIEW ARTICLES

- Bakker, E.,\* **Chumbimuni-Torres, K. Y.** (2008) Modern directions for potentiometric sensors. *J. Braz. Chem. Soc.* 19, 612-629.
- **Chumbimuni-Torres, K. Y.**, Calvo-Marzal P., Kubota, L.\* (2006) Recent advances and new perspectives of ion-selective electrodes. *Quim. Nova* 29, 1094-1100.

### BOOK AND BOOK CHAPTERS

- Felhofer, J., **Chumbimuni-Torres, K.**, Garcia, C. Critical Evaluation of the Use of Surfactants in Capillary Electrophoresis. Chapter 1. In: *Capillary Electrophoresis and Microchip Capillary Electrophoresis: Principles, Applications, and Limitations*. John Wiley & Sons, Hoboken, NJ. ISBN: 978-0-470-57217-7.
- Carlos D. Garcia, **Karin Y. Chumbimuni-Torres** and Emanuel Carrilho. 2013. *Capillary Electrophoresis and Microchip Capillary Electrophoresis: Principles, Applications, and Limitations*. John Wiley & Sons, Hoboken, NJ. ISBN: 978-0-470-57217-7.

### CONFERENCE PROCEEDINGS

## Karin Y. Chumbimuni-Torres

- East, K. E., Dupras, T. L., **Chumbimuni-Torres, K. Y.**, Williams, L., Kolpashchicov. (2015) A multidisciplinary approach to analyzing sex and gender in the ancient world using a DNA and stable isotope analysis: a pilot study from the Dakhleh, Egypt. *Abstract of Papers of the American Journal of physical Anthropology*. Pages 126-126. St. Louis, MO. 2015
- Felhofer, J. L., Nejadnik, M. M., **Chumbimuni-Torres, K. Y.**, Garcia, C. D. G. (2012) Rational development of biosensors based on enzymes adsorbed onto carbon nanotubes. *Abstract of Papers of the American Chemical Society* 243, 646-COLL. San Diego, CA. March 25-29, 2012.

## PATENTS

- Patent Application #62/404,922 Filing data 10/06/2016. Title: DNA-Based electrochemical biosensors for rapid detection of antibiotic resistant bacteria. Authors: Hyoung Cho, **Karin Chumbimuni-Torres**, Dmitry Kolpashchikov and Christopher Hughes.
- Patent Application #503270974 Filing date: 03/04/2015. Title: Ion-Selective Electrode and Systems and Methods Utilizing Same. Authors: **Karin Y. Chumbimuni Torres**, Michelle Rich, Percy Calvo-Marzal, Samantha Mensah.

## INVITED TALKS

- **Chumbimuni-Torres, Karin.** Invited speaker at IV International Encounter of Science and Technology ECITEC 2019. Lima, Peru November 6<sup>th</sup>, 2019.
- **Chumbimuni-Torres, Karin.** Invited speaker at Symposium Iberoamerican of electrochemistry – Cuzco, Peru. June 5<sup>th</sup>, 2018.
- **Chumbimuni-Torres, Karin.** Invited speaker as preparing the next generation of chemistry faculty: Chemical Sciences at the interface of Education. Chemistry Department at university of Michigan. February 17, 2017.
- **Chumbimuni-Torres, Karin.** Invited speaker at Instituto Nacional de Ciencia e Tecnologia de Bioanalitica and IV Escola de Bioanalitica – IV ESCbio. Instituto de Quimica – UNICAMP, Campinas, Brazil. May 2<sup>nd</sup> 2016.
- **Chumbimuni-Torres, Karin.** First Generation Panel organized by UCF Center for Success of Women Faculty, McNair and CAMP-YES program. Teaching and Learning, November 7<sup>th</sup>, 2016.
- **Chumbimuni-Torres, Karin.** Panelist at discussion on underrepresent students at STEM as classroom intensive presenter. Share Fair Nation Orlando January 23<sup>th</sup>, 2016.
- **Chumbimuni-Torres, Karin.** Workshop in Sensors and Biosensors. University of Lima. January 11<sup>th</sup>, 2016, Lima, Peru.
- **Chumbimuni-Torres, Karin.** Invited Speaker at UCF's GEMS program: Succeeding in STEM carriers. October 10<sup>th</sup>, 2013.
- **Chumbimuni-Torres, Karin.** STEM Academy: Sensors for real applications, bioanalysis and environmental applications. At University of Central Florida, August 12, 2013.
- **Chumbimuni-Torres, Karin.** Invited Speaker: Optical and Electrochemical Sensors the Future, invite by the Faculty of Science, Chemistry Department. University of Engineering, Lima-Peru, May 20, 2013.
- **Chumbimuni-Torres, Karin.** Speaker at seminary: Electrochemical Sensors for cancer biomarkers. Chemistry Department at University of Central Florida. September 9<sup>th</sup>, 2012.

## NATIONAL AND INTERNATIONAL CONFERENCES

### INVITED SPEAKER

- **Chumbimuni-Torres, Karin.** Invited speaker: "New approach in acid nucleic detection using electrochemical biosensors". Matrafured 2019, Hungary, June 16-21, 2019
- **Chumbimuni-Torres, Karin.** Invited speaker: "Trends in photo-activatable fluorophores via metastable photoacids". Matrafured 2017, Hungary, June 11-16, 2017.
- **Chumbimuni-Torres, K. Y.** Advances in Chemistry. International seminar of science, technology and environmental", CEPRECYT, Lima-Peru, January 5, 2008.

ORAL PRESENTATIONS

- **Chumbimuni-Torres, K. Y.**; Rostampour, M.; Bailey, B.; Autrey. 'Paper-Based Ion-Selective Electrode Advantages, Challenges and Applications'. PITTCON 2020, March 3er, Chicago, IL.
- **Rostampour, M.**; Chumbimuni-Torres, K.; 'Low Cost, Calibration-free Ionophore-Based Ion-Selective Electrodes for Determination of Na, K and Heavy Metals'. PITTCON 2020, March 4th, Chicago, IL.
- **Arias, J.**; Richardson, D.; Adbelrahim, M.; Patel, P. K.; Romero, E.; Chumbimuni-Torres, K. 'Conformations of tricyanofuram photoacids: An experimental/theoretical approach'. 256<sup>th</sup> ACS National Meeting 2019, March 31 – April 04. Orlando, FL
- **Chumbimuni-Torres, K. Y.**; Patel, P.; Gongora, R.; Arias, J. 'Visible-light activatable, controllable and robust ion-sensing platform using Metastable-state photoacids'. PITTCON 2018, February 27 - March 1<sup>st</sup>. Orlando, FL
- **Rostampour, M.**; Armas, S.; Chumbimuni-Torres, K. 'Wearable potentiometric sensors for heavy metals detection'. 255<sup>th</sup> ACS National Meeting, March 2018. New Orleans, LA
- **Chumbimuni-Torres, K. Y.**; Patel, P.; Gongora, R. 'Metastable-state photoacids towards activatable and controllable in ion sensing for biological applications'. PITTCON 2017, March 4-8, Chicago, IL
- **Chumbimuni-Torres, K. Y.** Metastable Photoacids towards Activatable and Controllable Ion Sensing Bulk Membranes for Cations Detection. Oral Presentation at PITTCON 2016, March 6-10, Atlanta, GA.
- **Chumbimuni-Torres, K. Y.** Ion-Selective Optodes Based on Reversible Meta-Stable Photoacids. Oral Presentation at PITTCON 2015, March 8-12, New Orleans, LA.
- **Chumbimuni-Torres, K. Y.**, Calvo-Marzal, P., Wang, J.; Bakker, E. Electrochemical Matrix Elimination for Potentiometric Detection. PITTCON 2008, New Orleans, LA. March 1, 2008.
- **Chumbimuni-Torres, K. Y.** (2008) Potentiometric Sensors for Bioanalysis. International Conference of Science and Technology, Lima, Peru. January 5, 2008.
- **Chumbimuni-Torres, K. Y.**; Dai, Z.; Rubinova, N.; Xiang, Y.; Pretsch, E.; Wang, J.; Bakker, E. Potentiometric Biosensing of Proteins with Ultrasensitive Ion-Selective Microelectrodes. PITTCON 2007, Chicago, IL, February 25, 2007.
- **Chumbimuni-Torres, K. Y.**; Rubinova, N.; Bakker, E. Ion Selective Electrodes for bioanalysis. SIBEE. Aguas de Lindoia, SP, Brazil. 2007.
- **Chumbimuni-Torres, K. Y.**; Calvo-Marzal, P.; Kubota, L. T. Development of ion-selective electrodes of solid contact for cations with nanomolar detection limit. 13<sup>a</sup> Encontro Nacional de Química Analítica/ 1<sup>o</sup> Congresso Ibero-Americano de Química Analítica, Niterói, RJ. Brazil. Book of abstracts, September 12, 2005.
- **Chumbimuni-Torres, K. Y.**; Fernandes, J. C. B., Höehr, N. F.; Kubota, L. T. Development of ion-selective electrode for calcium and application in FIA for serum analysis. XII Simpósio Brasileiro de Eletroquímica e Eletroanalítica, Book of abstracts S19, Gramado, RS. Brazil, April 26, 2001.

POSTER PRESENTATIONS

- **Boza, M.**; **Turner, S.**; **El Merhebi, O.**; Foguel, M.; Calvo-Marzal, P; **Chumbimuni-Torres, K.** 'Reagentless Amplification of the Electrochemical Signal of Biosensor for a Cancer Biomarker in Serum Sample'. PITTCON 2020, March 4th, Chicago, IL.
- **Balcarcel, A.**; Foguel, M.; Kolpashchikov, D; Calvo-Marzal, P; **Chumbimuni-Torres, K.** 'Electrochemical Biosensor based on DNA for Detection of Pathogenic E. Coli'. PITTCON 2020, March 4th, Chicago, IL.
- **Autrey, C.**; **Rostampour, M.**; **Bailey, B.**; Calvo-Marzal, P; **Chumbimuni-Torres, K.** 'Sodium Analysis in Blood Using Ion-Selective Electrodes'. PITTCON 2020, March 4th, Chicago, IL.
- **Balcarcel, A. M.**; Foguel, M. V.; Ledesma, C. E.; Calvo-Marzal, P. **Chumbimuni-Torres, K.** 'Differentiation between Zika Lineages using Electrochemical Biosensors Based on Nucleic Acid Detection'. 256<sup>th</sup> ACS National Meeting 2019, March 31 – April 04. Orlando, FL
- **Turner, S.**; **Boza, M. C.**; Foguel, M. V.; Calvo-Marzal, P. **Chumbimuni-Torres, K.** 'Chemometric analyses for electrochemical signal amplification for the detection of microRNA'. 256<sup>th</sup> ACS National Meeting 2019, March 31 – April 04. Orlando, FL

## Karin Y. Chumbimuni-Torres

- **Brian, R. B.; Autrey, C. M.; Calvo-Marzal, P.; Chumbimuni-Torres, K. Y.** ‘Development of Hydrophobic Conductive Ink and its applications towards paper-based Ion-Selective Electrodes’. PITTCON 2019, March 17 – 21, Philadelphia, PA
- Foguel, M. V.; Calvo-Marzal, P.; Kolpashchikov, D. M.; **Chumbimuni-Torres, K. Y.** ‘Single Sensor for Detection of Zika and Dengue Viruses’. PITTCON 2019, March 17 – 21, Philadelphia, PA. [It was awarded as best poster of the session.](#)
- **Arias, J.; Romero, E.; Patel, P.;** Hernandez, F. E.; **Chumbimuni-Torres, K. Y.** ‘Computational Studies on Metastable-State Photoacids’. PITTCON 2018, February 27 - March 1<sup>st</sup> Orlando, FL
- **Armas, S. M.; Autrey, C. M.; Blanco, E. J.; Church, J.;** Santra, S.; Lee, W. H.; **Chumbimuni-Torres, K. Y.** ‘Solid-Contact Micro-Ion-Selective Electrode for Analysis of Zinc in Plants’. PITTCON 2018, February 27 - March 1<sup>st</sup> Orlando, FL
- **Patel, P.; Saez, J.;** Mayni, C. C.; Benito-Lopez, F.; **Chumbimuni-Torres, K. Y.** ‘Fluorescence based sodium sensing ion-selective optode using metastable-state photoacid in microfluidic device’. PITTCON 2018, February 27 - March 1<sup>st</sup> Orlando, FL
- **Trieu, T. T.; Mills, D. M.; Martin, C. P.; Kamar, O.;** Calvo-Marzal, P., Parks, G. D.; Kolpashchikov, D. M.; **Chumbimuni-Torres, K. Y.** ‘A Highly Selective Electrochemical Biosensor for Detection of Zika Virus’. PITTCON 2018, February 27 - March 1<sup>st</sup> Orlando, FL
- **Armas, S.; Rastompaor, M.;** **Chumbimuni-Torres, K. Y.** ‘The clover sensor: A multiple ion-selective platform for detection of sodium, potassium, iodine and calcium ions’. PITTCON 2017, March 4-8, Chicago, IL
- **Gongora, R.; Patel, P., Arias, J., Chumbimuni-Torres, K. Y.** ‘Tuning pKa of merocyanine metastable-state photoacids for ion sensing membranes operational at physiological conditions’. PITTCON 2017, March 4-8, Chicago, IL.
- **Lozano-Unitiveros, K.;** Caxico de Abreu, F.; **Chumbimuni-Torres, K. Y.** ‘Electrochemical biosensors and spectral study on the interaction of the new acridine-thiophene cancer drug with dsDNA and ssDNA’. PITTCON 2017, March 4-8, Chicago, IL.
- **Dawn, Mills, M.;** Kolpashchikov, D.; **Chumbimuni-Torres, K. Y.** ‘A universal and highly selective four-way junction electrochemical nucleic acid sensor’. PITTCON 2017, March 4-8, Chicago, IL.
- **Hulce, C., Lois, W.,** Lee, W., Santra, S., **Chumbimuni-Torres, K. Y.** Development and Characterization of an Ion Selective Microsensor for the Detection and Monitoring of Zinc Levels in Citrus Plants. PITTCON 2016, March 6-10, Atlanta, GA.
- **Armas, S., Mahan, A., Chumbimuni-Torres, K. Y.** Self-Reference Single Strip Paper Based Sensors for Ion Detection. PITTCON 2016, March 6-10, Atlanta, GA.
- **Patel, P., Chumbimuni-Torres, K. Y.** Potentiometric: Ion-Selective Optodes Based on Meta-Stable Photoacids for Calcium Detection. PITTCON 2016, March 6-10, Atlanta, GA.
- **Mills, D., Pinzon, J., Chumbimuni-Torres, K. Y.** Signal Amplification of a Highly Selective Universal MicroRNA Electrochemical Sensor for Single Nucleotide Polymorphism Detection. PITTCON 2016, March 6-10, Atlanta, GA.
- **Patel, P., Chumbimuni-Torres, K. Y.** ‘Controlled Optical Sensing Films Based on a Meta-Stable Photoacid: Extension of Ion-Selective Optode Theory’. PITTCON 2015, March 8-12, New Orleans, LA.
- **Boone, J., Patel, P., Chumbimuni-Torres, K. Y.** ‘Characterization of Meta-Stable Photoacids for the Use in Ion-Selective Optodes’. PITTCON 2015, March 8-12, New Orleans, LA.
- **Mills, D., Calvo-Marzal, P., Chumbimuni-Torres, K. Y.** ‘Four-Way Junction Electrochemical Sensor used for Detection of MicroRNA’. PITTCON 2015, March 8-12, New Orleans, LA.
- **Young, K., Johns, V., Chumbimuni-Torres, K. Y.** ‘Rational Design of MMA-DMA Copolymer to Improve the Limit of Detection of Ion-Selective Electrodes’. PITTCON 2015, March 8-12, New Orleans, LA.
- **Mensah, S., Blanco, E., Mahan, A.,** Calvo-Marzal, P., **Chumbimuni-Torres, K. Y.** ‘Improving Ion-Selective Electrodes for Applications in Multiplex Analysis. PITTCON 2015, March 8-12, New Orleans, LA.
- **Patel, P., Johns, V., Calvo-Marzal, P., Chumbimuni-Torres, K. Y.** ‘Tuning the response of ion-selective optodes by appropriate functionalization’. “Matrafured 2014”, June 15-20, Vinagery, Hungary.
- **Tran, K., Borchardt, G.,** Calvo-Marzal, P., **Chumbimuni-Torres, K. Y.** ‘Universal Electrochemical Probe for Genotyping’. 225<sup>th</sup> ECS Meeting, May 11-16, 2014, Orlando FL.



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- **Rich, M., Mensah, S., Chumbimuni-Torres, K. Y.** Improving ion-selective electrodes for applications in multiplex analysis. 247<sup>th</sup> ACS National Meeting, March 16-20, 2014, Dallas, TX.
- **Patel, P., Johns, V., Hasset, Sh., Calvo-Marzal, P., Chumbimuni-Torres, K. Y.** Reversible Sensors Based on Meta-Stable Photoacid Polymer Activated by Visible Light. PITTCON 2014, March 2-6, Chicago, IL.
- **Mensah, S., Calvo-Marzal, P., Chumbimuni-Torres, K. Y.** Nanomolar detection limits of Ca<sup>2+</sup>, Ag<sup>+</sup>, and K<sup>+</sup> using paper-strip-ion-selective electrode. PITTCON 2014, March 2-6, Chicago, IL.
- **Chumbimuni-Torres, K. Y.; Coronado, R. E.; Mfuh, A. M.; Silva, M. F.; Negrete, G. R.; Bizios, R.; Garcia, C. D.** (2011) Adsorption of Proteins onto PDMS-Like Nanofilms to Promote Mammalian Cell Adhesion. BMES 2011 Annual meeting, CT.
- Coronado, R. E.; **Chumbimuni-Torres, K. Y.**; Mfuh, A. M.; Silva, M. F.; Negrete, G. R.; Bizios, R.; Garcia, C. D. (2011) Fabrication and Rational Surface Modification of PDMS-Like Nanofilms and its Effect on Adhesion of Endothelial Cells. 3<sup>rd</sup> IC4N in Crete Island, Greece, 2011
- **Rubinova, N.; Chumbimuni-Torres, K. Y.; Shvarev, A.; Bakker, E.** (2006) Solid-Contact Silver-Selective Microelectrodes for the Detection of Silver Ions at the Femtomole Level. PITTCON, Orlando, FL. March 12, 2006.
- **Chumbimuni-Torres, K. Y.; Rubinova, N.; Bakker, E.** (2005) A Universal Recipe for Solid Contact Potentiometric Sensors for Trace Level Measurements. Mátrafüred in Hungary. September 13, 2005.
- **Chumbimuni-Torres, K. Y.; Calvo-Marzal, P.; Kubota, L. T.** (2005) Development of ion-selective electrode for iodide with nanomolar detection limit. In: 13<sup>o</sup> Encontro Nacional de Química Analítica / 1<sup>o</sup> Congresso Ibero-Americano de Química Analítica, Niterói, RJ, Brazil. Livro de Resumos. September 12, 2005.
- **Chumbimuni-Torres, K. Y.; Bakker, E.; Kubota, L. T.** (2005) Nanodetection limit of silver with solid contact ion selective electrode. In: 28<sup>a</sup> Reunião Anual da Sociedade Brasileira de Química, Poços de Caldas, SP, Brazil. Book of abstracts, May 30, 2005.
- Oliveira, B.; **Chumbimuni-Torres, K. Y.**; Kubota, L. T. (2004) Potentiometric determination of thiocyanate in urine. In: XII Congresso Interno de Iniciação Científica da UNICAMP, Campinas, SP, Brazil. Book of abstracts E366, September 22, 2004.
- **Chumbimuni-Torres, K. Y.; Calvo-Marzal, P.; Kubota, L. T.** (2004) Simultaneous determination of calcium, potassium and chloride in juice samples using tubular ion-selective electrode couple to flow injection analysis. In: XIV Simpósio Brasileiro de Eletroquímica e Eletroanalítica, Teresópolis, RJ, Brazil. Book of abstracts, August 08, 2004.
- Oliveira, B.; **Chumbimuni-Torres, K. Y.**; Kubota, L. T. (2004) Construction and optimization of potentiometric sensors sensible to thiocyanate based of copper-phtalocianine-EVA. In XIV Simpósio Brasileiro de Eletroquímica e Eletroanalítica, Teresópolis, RJ, Brazil. Book of abstracts, August 08, 2004.
- Oliveira, B.; **Chumbimuni-Torres, K. Y.**; Kubota, L. T. (2004) Potentiometric Electrode based on copper phtalocianine sensible to thiocyanete. In: XXVI Congresso Latinoamericano de Química e 27<sup>a</sup> Reunião Anual da Sociedade Brasileira de Química, Salvador, Brazil. Book of abstracts, May 30, 2004.
- **Chumbimuni-Torres, K. Y.**; Kubota, L. T. (2003) Sequential determination of calcium and potassium in coconut water by a flow-injection method based on the use of ion-selective electrodes. In: 54<sup>th</sup> Annual Meeting of the International Society of Electrochemistry, São Pedro, SP, Brazil. Book of abstracts, August 31, 2003.
- Riveiro, P. J. F.; **Chumbimuni-Torres, K. Y.**; Kubota, L. T. (2003) Developmetn of íon-selective electrode for ibuprofene. In: 12<sup>o</sup> Encontro Nacional de Química Analítica, São Luís, Maranhão. Book of abstracts, October 14, 2003.
- Oliveira, B.; **Chumbimuni-Torres, K. Y.**; Kubota, L. T. (2003) Determination of Heparin in drugs by potentiometric sensor. In: XI Congresso Interno de Iniciação Científica da UNICAMP, Campinas, SP, Brazil. Book of abstracts, September 25, 2003.
- **Chumbimuni-Torres, K. Y.**; Kubota, L. T. (2003) Quantification of potassium in coconut water using flow injection analysis with ion-selective electrode. In: 26<sup>a</sup> Reunião Anual da Sociedade Brasileira de Química, Poços de Caldas, SP, Brazil. Book of abstracts, May 26, 2003.
- Oliveira, B.; **Chumbimuni-Torres, K. Y.**; Kubota, T. L. (2003) Development of ion-selective electrode for Heparine. In: 26<sup>a</sup> Reunião Anual da Sociedade Brasileira de Química, Poços de Caldas, SP, Brazil. Book of abstracts, May 26, 2003.

## Karin Y. Chumbimuni-Torres

- **Chumbimuni-Torres, K. Y.;** Cerqueira, E. O.; Poppi, R. J.; Kubota, L. T. (2002) Potentiometric determination in FIA of iodide in presence of chloride, using neural networks. In: 25<sup>a</sup> Reunião Anual da Sociedade Brasileira de Química, Poços de Caldas, SP, Brazil. Book of abstracts, May 20, 2002.
- **Chumbimuni-Torres, K. Y.;** Cerqueira, E. O.; Poppi, R. J.; Kubota, L. T. (2001) Simultaneous determination of I<sup>-</sup> and Cl<sup>-</sup> using ion-selective electrode with multivariate calibration in FIA system. In: 11<sup>o</sup> Encontro Nacional de Química Analítica, Campinas, SP, Brazil. Book of abstracts, September 18, 2001.
- Dias, V. V.; Cerqueira, E. O.; Kubota, L. T.; Fernandes, J. C. B.; **Chumbimuni-Torres, K. Y.;** Poppi, R. J. (2001) Optimization of potentiometric determination of ascorbic acid using an electrode of copolymeric matrix doped with copper-II. In: 24<sup>a</sup> Reunião Anual da Sociedade Brasileira de Química, Poços de Caldas, SP, Brazil. Book of abstracts, May 28, 2001.
- Valter, V. D.; **Chumbimuni-Torres, K. Y.;** Fernandes, J. C. B.; Kubota, L. T. (2001) Potentiometric determination of ascorbic acid in juices samples using tubular electrode doped with copper-II. In: VIII Congresso Interno de Iniciação Científica da UNICAMP, Campinas, SP, Brazil. Book of abstracts, September 19, 2001.
- **Chumbimuni-Torres, K. Y.;** Garcia, C. A. B.; Oliveira N. G.; Fernandes, J. C. B.; Kubota, L. T. (2000) Development of ion-selective electrode for iodide determination by flow injection analysis. In: 23<sup>a</sup> Reunião Anual da Sociedade Brasileira de Química, Poços de Caldas, SP, Brazil. Book of abstracts, May 23, 2000.

## GRANT SUPPORT FOR STUDENTS

### STUDENT RESEARCH GRANTS

- |      |   |
|------|---|
| 2018 | Andrea Bances-Monarc and Brian Bailey, OUR grant program. 'Development of a clover sensor for detection of sodium, potassium and iodide'. \$1000. |
| 2018 | Christopher Castro Mayni. 'Development of films and nanosensor for heavy metal ion detection with optical transduction'. \$500.                   |
| 2017 | Olivia Younce, OUR grant program. 'Development of a clover sensor for detection of sodium, potassium and iodide'. \$500                           |
| 2017 | Juan Arias, OUR grant program. 'Physico-chemical characterization of meta-stable photoacids'. \$500.  |
| 2017 | Christopher Martin, OUR grant program. 'Electrochemical sensor for Mycobacteria tuberculosis'. \$500.   |
| 2016 | Wynstona Lois, OUR grant program. 'Ion sensors for in-situ plant detection characterization and optimization'. \$1000.                            |
| 2016 | Courtney Hulce, grant through SURF program. 'Development of an ion-selective microsensor for detection of Zinc Ions in Citrus Plants. \$1,000.    |
| 2016 | Student research grant through LEARN program. Graduate student advisor, Dawn Mills \$500.   |
| 2016 | Jeffer Pinzon, OUR grant program. 'Signal amplification using electrochemical sensors for RNA detection'. \$500.                                  |
| 2016 | Stephanie Armas, OUR grant program. 'Paper-based electrolyte free conditioning sensor for ion detection'. \$1000.                                 |
| 2016 | Samantha Mensah, OUR grant program. 'A equilibration-free paper ion selective electrode with nanomolar detection limit'. \$500.                   |
| 2015 | Courtney Hulce, OUR grant program. 'The development and characterization of a Zinc(II) Calibration-less Ion-Selective Microsensor'. \$500.        |
| 2015 | Student research grant through SURF program. 'Real time release monitoring of the drug doxorubicin (anti-cancer drug). \$1,000.                   |
| 2015 | Student research grant through LEARN program. Graduate student advisor, Dawn Mills \$500.   |
| 2015 | Enrique Blanco, OUR grant program. 'Characterization of photoacids for the Use in Ion-Selective Optodes'. \$500.                                  |

## Karin Y. Chumbimuni-Torres

2015	Andrew Maham, OUR grant Program. 'Solid Contact Ion-Selective Electrodes For in Field Applications'. \$500.
2014	Katheryne Young, OUR grant program. 'A four-way junction system for DNA detection using ion-selective electrodes'. \$500.
2014	Enrique Blanco, LIFE grant program. 'Improving the limits of detection of Ion Selective Electrodes for Calcium ions in the presence of proteins'. \$500.
2014	Shelly Hassett, from The Burnett Honors College (SMART program), 'Optimization of ion sensing optodes based on photoacid compounds'. \$2,000.
2014	Samantha Mensah, from the Office of Undergraduate Research (OUR) at UCF, 'Development of Ultra-sensitive Ion-selective electrodes'. \$500.

### OTHER RELATED STUDENT GRANTS AND SCHOLARSHIPS

2018-2020	RAMP program funded for Cody Autrey. \$ 10K
2019	Student Government Association. Four Student travels grants to participate in conferences. \$850.
2019	Student Government Association. Four Student travels grants to participate in conferences. \$500
2018	Cody Autrey, Andrea Bances and Rondell got the Peruvian Research Exchange Fellowship at around \$5K each.
2018	Office of Undergraduate Research. Five students travel awards to present at national conferences in a total of \$2.5K.
2018	Student Government Association. Four Student travels grants to participate in conferences. \$1,000.
2017-2019	RAMP program funded for Christopher Martin. \$ 10K.
2017	Four Graduate student travel grants to participate at the conferences \$2,000.
2017	Student Government Association. Four Student travel awards to participate in conferences. \$1,000.
2016	Office of Undergraduate Research. Three student travels grants to participate in conferences. \$750.
2016	Two Graduated student travel grant to participate at the conferences \$1,000.
2016	Student Government Association. Four Student travels grants to participate in conferences. \$1,000.
2016	Courtney Hulce obtained The Martha Hitt STEM-Emerging Scholar Scholarship from the Women Studies Center. \$200
2015-2016	NSF Funded CAMP-YES Program for Samantha Mensah \$10K.
2015-2016	NSF Funded CAMP-YES Program for Stephanie Armas \$ 10K.
2015	Student Government Association. Three Student travels grants to participate in conferences \$1,000.
2015	Office of Undergraduate Research. One student travel grants to participate in conferences. \$500.
2015	Student Government Association. Three Student travels grants to participate in conferences. \$750.
2015	Stephanie Armas obtained The Martha Hitt STEM-Emerging Scholar Scholarship from the Women Studies Center. \$200.
2014	Student Government Association. Four Student travels grants to participate in conferences. \$1,000.
2014	Office of Undergraduate Research. Two Student travels grants to participate in conferences. \$500.
2014	Michelle Rich obtained The Martha Hitt STEM-Emerging Scholar Scholarship from the Women Studies Center. \$200.

## Karin Y. Chumbimuni-Torres

### TEACHING

#### UNDERGRADUATE COURSES TAUGHT

Chemistry Fundamentals IA (CHM 2040)  
Chemistry Fundamentals IB (CHM 2041)  
Analytical Chemistry (CHM 3120)  
Independent Study (CHM4906)  
Research Undergraduate (CHM7919)  
Electrochemistry (CHM4427)

#### GRADUATE COURSES TAUGHT

Research Graduate (CHM 7919)  
Research Report (CHM 6918)  
Dissertation (CHM 7980)  
Electrochemistry for Graduate (CHM6908)  
GRADUATE THESIS, ADVISER

- 2016-Present Ali Haghghat Mesbani-PhD in Chemistry-in progress  
*Thesis: Synthesis of meta-stable photoacids and study of fluorescence capabilities towards sensing.*
- 2017-present Mohammad Rostampour-PhD in Chemistry-in progress  
*Thesis: Engineering paper based devices for optical and electrochemical sensing applications.*
- 2016-2018 Stephanie Armas-Ms in Chemistry-in progress  
*Thesis: New approach for developing potentiometric sensors towards point-of-care analysis*
- 2015-2019 Parth Patel – PhD in Chemistry – Complete candidacy in 2017  
*Thesis: Introducing meta-stable state photoacids for imaging and optical detection of ions in vitro and in vivo.*
- 2014-2017 Dawn Mills - PhD in Chemistry - Complete candidacy in 2016  
*Thesis: Understanding, development and optimization of Nucleic Acids using Electrochemical techniques.*
- 2015-2017 Katherine Lozano Untiveros – PhD in Chemistry – Co-adviser. Universidade Federal de Alagoas.  
*Thesis: Electrochemical approach and development of a biosensor based on hairpin-DNA modified gold electrode for detection of DNA damage for a new acridine-thiophene cancer drug.*

### INTERNATIONAL STUDENTS, RESEARCH SCHOLARS

- 2019 Victor Zamora (Department of Chemistry, Science Faculty). Undergraduate Exchange Student, National University of Engineering, Lima, Peru)
- 2018 Gabriel Cerron (Department of Chemistry, Science Faculty). Undergraduate Exchange Student, National University of Engineering, Lima, Peru)
- 2018 Julio Ojeda (Department of Chemistry, Science Faculty). Undergraduate Exchange Student, National University of Engineering, Lima, Peru)
- 2018 Carlos Salazar (Department of Chemistry, Science Faculty). Undergraduate Exchange Student, National University of Engineering, Lima, Peru)
- 2015-2016 Katherine Lozano Untiveros (Department of Chemistry and Biotechnology, University Federal of Alagos, Brazil). PhD Exchange Student. One year Visiting Scholar.
- 2016 Janire Saez (Facultad de Farmacia, Universidad del Pais Vasgo, Spain) Two months Visiting Scholar.
- 2016 Tuceg Akyazi (Facultad de Farmacia, Universidad del Pais Vasgo, Spain) Three months Visiting Scholar.
- 2015 Lukas Limerik (School of Physical and Geographical Sciences, Keele university, United Kindown). Two months Visiting Scholar.

## Karin Y. Chumbimuni-Torres

- 2015 Andrew (School of Physical and Geographical Sciences, Keele university, United Kindwon). Four months Visiting Scholar.  
2014 Jing Wu (School of Chemistry, Nanjing University, China). Exchange PhD Student.

### HONORS IN THE MAJOR STUDENTS

- 2019-2020 Omar El Merhebi (Chemistry, UCF)  
2017-2019 Juan Arias (Chemistry, UCF)  
2014-2016 Enrique Blanco (Chemistry, UCF)  
2012-2014 Shelly Hassett (Chemistry, UCF)

### UNDERGRADUATE STUDENTS

- 2017-present **Cody Autrey**  
Supervised research in multiplex analysis of ions in paper base sensors.  
Obtained a Provost Scholarship  
Was awarded the Peruvian Research Exchange Fellowship  
Got RAMP Scholar 2018 and OUR travel award to present at conferences  
Present his research at SURE 2018, SIBAE 2018, MISA 2017 and PITCON 2018
- 2017-present **Angelica Balcarcel**  
Supervised research in the development of electrochemical biosensors for bacteria detections, her findings result in two paper publication.  
She presented poster at two National Conferences, ACS 2019 and Biosensors 2018.  
She obtained travel award from OUR and SGA to travel to conferences.
- 2018-present **Brooke Vantorenburg**  
Supervised research in the development of electrochemical biosensors for Zika and Dengue virus detection.  
She obtained an OUR award-team in Fall 2019 (\$1500)  
She obtained the Martha HiTT STEM award (2019, \$250)
- 2018-present **Omar El Merhabi**  
Supervised research in the development of electrochemical biosensors for HIV.  
Honors in the major thesis
- 2017-present **Maria Boza**  
Supervised research in the development of electrochemical biosensors for Breast cancer biomarkers. She is preparing a manuscript for publication  
Her findings were presented at three different conferences.  
Obtained travel awards from OUR and SGA to participated in National Conferences.
- 2017-present **Mohammed Abdelrahim**  
Supervised research in computational chemistry. Part of his work is included in a manuscript that will be submitted soon.  
He presented his work at SURE 2018 and 2019 and at the Electrochemical Symposium in Fall 2019.
- 2017-2019 **Samuel Turner**  
Supervised research in the development of amplification techniques for nucleic acids. His findings will be including in a manuscript for publication.  
He participated of two National conferences.  
Got a judge choice award in SURE 2019  
Obtained travel award from OUR and SGA to participated in conferences
- 2013-2017 **Samantha Mensah**  
Supervised research in the development of paper based potentiometric sensors, her findings result in two paper publication, where she is the first author in one of them. She presented poster at three National Conferences  
National Award: Winifred Burks-Houck Undergraduate Award scholarship  
Office of Undergraduate Research (OUR) individual and as a group (2013, \$1,500)  
Martha HiTT STEM award (2014, \$ 250)

## Karin Y. Chumbimuni-Torres

- 2017-2018  
CAMP-YES award (2015 and 2016, \$5,000 per semester)  
Summer Internship in France (Summer 2015, \$ 5,000)).  
**Christopher Castro Mayni**  
Supervised research in the development of films and nanosensors for ion detection, characterizing size and performance  
Office of Undergraduate research (OUR) (2017, \$ 500)
- 2015-2019  
**Christopher Martin**  
Supervised research in the development of electrochemical sensors for DNA detection, elucidating the advantages of using four-way-junction system.  
Office of Undergraduate Research (OUR) (2016, \$ 500)  
RAMP program 2015
- 2016-2017  
**Olivia Younce**  
Supervised research in developed multiplex analysis of sodium, potassium and iodide in a paper strip electrodes without condition.  
Office of Undergraduate Research (OUR) (2016, \$ 500)
- 2016-2019  
**Juan Arias**  
Supervised research in the developed microspheres beads using metastable photoacids for sodium and calcium detection.  
Office of Undergraduate Research (OUR) (2016, \$ 500)
- 2016-2018  
**Tiffany Trieu**  
Supervised research in electrochemical sensors development for Zika virus with the ability to differentiate against other flavivirus.
- 2014-2016  
**Stephanie Armas**  
Supervised research in the development of multiplex analysis using ion-selective electrodes in strip format. She was involved in two paper publications.  
She presented posters at two National Conferences.  
OUR individual and as a group (2014, \$1,500)  
Martha HiTT STEM award (2015, \$ 250)  
3er Place, Undergraduate Research Forum (2015, \$ 300)  
CAMP-YES award (2015 and 2016, \$5,000 per semester)  
Summer Internship in University of Irvine (Summer 2015, \$ 5,000)
- 2014-2016  
**Courtney Hulce**  
Supervised research in the development of zinc sensor for in-situ analysis in plants. She presented one poster at a National Conference and one in a Regional conference.  
Martha HiTT STEM award (2016, \$ 250)  
OUR individual and as a group (2015, \$1,500)  
Burnett Honors College SMART grant (2016, \$2,000)  
Summer Undergraduate Research Fellowship (SURF) (Summer 2016, \$1,000)
- 2013-2015  
**Shelly Hassett**  
Supervised research in the synthesis of photoacids towards application in optical sensors. She was a co-author in a paper publication.  
She presented one poster at a National Conference  
OUR (2014, \$ 500)  
Burnett Honors College SMART grant (2014, \$2,000)
- 2013-2014  
**Michelle Rich**  
Supervised research in a new paradigm of ion-selective electrodes preparation, non-conditioning protocol. Product of her work was published in a paper with her as a first author. She was involve in a patent submission.  
She presented two posters at National Conference  
Martha HiTT STEM award (2015, \$ 250)  
1er Place, Undergraduate Research Forum (2014, \$ 750)
- 2015-2016  
**Wynstona Louis**  
Supervised research in sensors developed for detection of RNA tuberculosis towards point-of-care analysis.  
She presented at one Regional Conference.  
OUR individual and as a group (2015, \$1,500)

## Karin Y. Chumbimuni-Torres

2014-2018	<b>Enrique Blanco</b> Supervised research for calcium detection in complex matrix samples using paper strip sensors. His work was published in an Analytical Chemistry journal. OUR (2014, \$500) LIVE (2014, \$500) Obtained the Order of Pegasus (2016)
2014-2016	<b>Andrew Manhan (biomedical sciences)</b> Supervised research in developed paper based substrates toward sensing applications. Hi is currently writing a paper for future publication. Andrew presented his work at one National Conference. Office of Undergraduate Research (OUR) individual and as a group (2016, \$1,500)
2015-2017	<b>Jeffer Pinzon (biomedical sciences)</b> Supervised research in developing electrochemical sensors for microRNA for cancer analysis. Jeff was involved in one paper publications. He presented his work at National Conference. Office of Undergraduate Research (OUR) (2015, \$ 500) Summer Undergraduate Research Fellowship (SURF) (Summer 2016, \$1,000) Honor mention, Undergraduate Research Forum (2016, \$ 250)
2014-2016	<b>Kathryne Young</b> Supervised research in developed microsensors for silver ions in complex sample matrix. Office of Undergraduate Research (OUR) (2014, \$ 500)
2014-2015	<b>Jimmy Boone</b> Supervised research in the chemical characterization of metastable photoacids. Jimmy was involve in one paper publication. He presented one poster at National Conference.
2015-2016	<b>Kamry Sammuell</b> Supervised research in electrochemical characterization in varios structures of DNA Hybridization towards electrochemical sensing. RAMP program 2015.
Completed Mentorship:	Ali Younis (Chemistry, UCF), Angelica Elsen (Chemistry, UCF), Alan Redee (Chemistry, UCF), Kathryne Young (Biochemistry, UCF), Gesca Borchardt (Biochemistry, UCF), Yessenia Gonzalez (Chemistry UCF), Maria Saavedra (Chemistry, UCF), Diego Castillo (Biomedical Sciences, UCF), Ariela Baran (Chemistry, UCF), Melissa Mena (Chemistry, UCF), Joseph Dejesus (Chemistry, UCF), Kristen Tran (Chemistry, UCF), Tremain Torley (Biomedical Science, UCF).

### THESIS COMMITTEES

PhD dissertation committee member for Kayton Kalakewich, Faris Munish, Yuly Vesga, Korine Calimag-Williams, Anthony Moore, Grace Ghaita and Astha Malhotra, Alejandra Flores. International PhD dissertation committee member for Katherine Lozano Untiveros (University Federal of Alagoas) and Elsa Maria Materon (University of Sao Paulo campus Araraquara-Brazil).  
B.S. Rebekah J. Karadeema, Stephanie Armas.

### CANDIDACY COMMITTES

PhD candidacy committee member for Thomas Germain, Zeyang Zhang, Ola Kamar, Ziyang Huang, Faris Munshi, Mitsuchita Dooma, Nanami Kikuchi, Jared Chruch, Yuly Vesga, Mikhael Soliman, Grace Gaita, Alejandra Flores, Anthony Moore, Xiaoyan Lu, Yuly Vesga Prada, Ali Ozcan and Yuemin Wang.

### THESIS IN THE MAJOR, COMMITTE

M.S. Juan Arias  
M.S. Derek Miller  
M.S. Enrique Blanco

### CHEMISTRY SEMINARS AND REPORTS

## Karin Y. Chumbimuni-Torres

Fourteen undergraduate research seminars (Yessenia Gonzales, Gesca Borchardt, Joseph De Jesus, Kristeen Tran, Steffany Armas, Wynnstona Louis, Jimmy Boone, Kamry Samuel, Courtney Hulce, Tiffany Trieu, Angelica Elsen, Enrique Blanco, Angelica Balcarcel, and Samuel Turner), seventeen undergraduate research reports (Parth Patel, Katherine Young, Joseph De Jesus, Steffany Armas, Courtney Hulce, Wynstone Loius, Kristen Tran, Enrique Blanco, Angelica Balcarcel Samuel Turner, Mac Hale, Victoria Slaughter, Christopher Roldan, Erik Kelsey, Jesse Maccione, Gabriela Nevares, and Jonny Torres) and four graduate research seminars (Dawn Mills, Stephanie Armas, Parth Patel and Renan Gongora).

### PROFESSIONAL DEVELOPMENT

2019	Women in STEM Community development - Fall 2019.
2019	Participation on the GEP program to increase awareness of the general courses unification at UCF.
2018	Faculty Mentoring Community-Center of Successful Women Faculty
2018	Summer Conference at Faculty Center for Teaching and Learning
2017	Participation in the WAC Fellows program.
2017	Summer Conference at Faculty Center for Teaching and Learning
2017	COACH Workshop: Coaching strong women in the Art of Strategic Persuasion
2016	Faculty Mentoring Community-Center of Successful Women Faculty
2016	Metacognition and Active Learning Cohort
2016	Harnessing the Power of Metacognition
2016	Metacognition CIP
2016	Creating strategies to motivation students for success
2015	Large Lecture Courses Faculty Development Cohort
2015	STEM Writing Group
2014	STEM Peer Observation Teaching Circle: Conversations for innovation, which is a program where science professors meet to discuss ways to improve teaching face-to-face class, as well as incorporating peer-to-peer feedback
2013	Summer Conference at Faculty Center for Teaching and Learning.

### TEACHING CONFERENCES PRESENTATIONS

2018	Participation in The Learning Assistant (LA) Conference in Miami. November 16 to 18.
2018	<b>Karin Y. Chumbimuni-Torres.</b> Engaging students in elective courses. 2018 sunshine Teaching and Learning Conference. February 27-28.
2017	<b>Karin Y. Chumbimuni-Torres,</b> Mary Tripp, Lihua Xu. Researching, applying, evaluating while learning in face to face Chemistry Class. 2017 sunshine Teaching and Learning Conference. February 15-17.
2016	Lihua Xu, Mary Tripp, <b>Karin Y. Chumbimuni-Torres.</b> Embedded peer coach pedagogy to improve undergraduate research in STEM students. SoTL Commons Conference. Georgia Southern University. Savannah, GA, March 30 – April.
2015	Keri Watson, Christa Dirkenon, Alisha Janowsky, <b>Karin Y. Chumbimuni-Torres.</b> Using virtual worlds to create Engaging Learning Environments. Virginia Tech, Conference on Teaching Large Classes, Blacksburg, Virginia, July 22-24.

### GRANTS

2018-2019	\$25,000 by 100Powers of America. Internationalization Program for STEM students through Learning and Research Experiences
2018	QEP grant: Enhancing Integrative Learning at UCF \$500.
2017	Implementing COACH approach at Analytical Chemistry Class (CHM 3120). \$900 by UCF-QEP (Quality Enhancement Plan).

### PUBLICATIONS

2020	Is your mentor really a mentor? Faculty Focus-UCF
2015	Increasing student engagement in large classes. Faculty Focus-UCF.



## Karin Y. Chumbimuni-Torres

### SERVICE

#### REFEREE FOR PROFESSIONAL JOURNALS

*ACS sensors, ACS applied nanomaterials, ACS Omega, Advance Science, Analyst, Analytical Sciences, Analytical Chemistry, Angewandte Chemie International Edition, Analytical Methods, Analytical Chimica Acta, Biosensors and Bioelectronics, ChemElectroChem, Chemical Communication, Chemical Sciences, Dyes and Pigments, Electroanalysis, Electrochimica Acta, IEEE, International Journal of Analytical Chemistry, International Journal of Environmental Analytical Chemistry, International Journal of Analytical Chemistry, Journal of American Chemical Society, Journal of Photochemistry and Photobiological A, Journal of Physical Organic Chemistry, Journal of Electroanalytical Chemistry, Journal of Physical Chemistry, Macromolecules Rapid Communication, Nature Communication, PLOSone, Review in Analytical Sciences, Sensors, Serbian Journal Chemical Society, Sensors and Actuators B, Scientific Reports Nature, Talanta, TraC.*

#### GRANT PROPOSAL REVIEWER AND OTHERS

Ad-doc review panel for National Science Foundation in 2020  
Ad-doc review panel for National Science Foundation in 2019  
Review panel for National Science Foundation in 2018  
Review panel for National Science Foundation in 2017  
Served as reviewer for Petroleum Research Foundation (PRF) in Fall 2015  
Reviewed 25 abstracts for oral and poster presentations at CLAQ “Latin-American of Analytical Chemistry Conferences” Fall 2015  
Space Research Initiative Fall 2012

#### SERVICE TO UCF

2020	SOTL Committee Award for UCF
2018-2020	Research Committee for College of Science
2019	Served as a judge on Showcase of Undergraduate Research Excellence (SURE).
2018	Served as a judge on Graduate Research Excellence.
2018	Served as a judge on Showcase of Undergraduate Research Excellence (SURE).
2017	Served as a judge on Graduate Research Excellence.
2017	Served as a judge on Showcase of Undergraduate Research Excellence (SURE).
2016	Participated in sharing experience in the 1 <sup>st</sup> Generation Panel for Underrepresenting Students at Teaching Academics on November 17.
2016	Served as a judge on Showcase of Undergraduate Research Excellence (SURE) on April 4.
2016	Participated in a Panel Discussion on Underrepresented Students in STEM for the Orlando SHARE FAIR 2016 at University of Central Florida. January -2015
2015	Participation in a Panel Discussion on Underrepresented Students in STEM for the Orlando SHARE FAIR 2016 at University of Central Florida.
2015	Served as a judge on Showcase of Undergraduate Research Excellence (SURE).
2014-2015	Participated in LEARN graduate mentoring, EXCEL and COMPASS undergraduate mentoring.
2014	Participated in sharing experiences and advice with new tenure track faculty in the College of Science on February 24.
2014	Served as a judge on Showcase of Undergraduate Research Excellence (SURE).
2013-2014	Participated in LEARN graduate mentoring, EXCEL and COMPASS undergraduate mentoring.
2013	Participated in the Summer 2013 STEM Research Academy by giving a research presentation and laboratory tour.
2013	Participated as an assistant for the ABET re-accreditation for the College of Engineering and Computer Science (CECS).

## **Karin Y. Chumbimuni-Torres**

2012 Delivered a research presentation for EXCEL Center program to undergraduate students.

### **SERVICE TO UCF CHEMISTRY DEPARTMENT**

2019-present Chair of a Lecture Search for two positions.  
2018-present Award coordinator to promote high standards at the department.  
2018-present Recruiting graduate committee  
2017 Biochemistry Search Committee and interviewed all the candidate.  
2016 Environmental Search Committee and interviewed all the candidate.  
2014-2016 Invite Three Speaker from other institutions.  
2015-present Department Undergraduate Curriculum Committee.  
2015 Biochemistry Department Search Committee.  
2014 Lecture Search Committee.  
2014 Forensic/Toxicology Department Search Committee.  
2012-present Served as evaluator in the Chemistry Seminar for at least 22 students as well as chemistry reports.  
2013-present Department Instrumentation Committee.  
2013-present Department Analytical Chemistry Committee.  
2013 Polymers/materials Science Department Search Committee.

### **SERVICE TO COMMUNITY**

2019 Energy related experiments for the Boy-scout Expo at Orlando.  
2018 International Outreach program at Johannes Gutenberg Philanthropic School at Lima-Peru.  
Demo and hands on experiments for 5<sup>th</sup> school students.  
2017-2018 High School Student supervision from Lake Highland Preparatory School (Julia Liu).  
2017 Present an outreach program to boy scout students at Earth Day in Orlando Center.  
2016 Organized an Outreach Spring Program at Seminole County Public Libraries, PLAY TO BE SHERLOCK HOLMES, for teenagers to be presented in March 2016.  
2015 Organized and present Outreach Program at Timber Creek High School. DNA detection using oxidation and reduction is FUN. November 2015.  
2014-present High School Student supervision from Lake Highland Preparatory School (Radhika Desai and Ria Bhaskar).  
2014 Organized and present Outreach summer program at Seminole County Public Libraries, FIZZ BOOM LAB. Summer 2014.

### **PROFESSIONAL MEMBERSHIP**

2017-present Society of Electroanalytical Chemistry  
2017-present Iberoamerican society of Electrochemistry  
2013-present Electrochemical Society, US  
2006-present American Chemical Society, US  
2000-2005 Brazilian Chemical Society, Brazil