

Vasiliki Lykourinou, Ph.D.

Associate Teaching Professor, Department of Chemistry and Chemical Biology Northeastern University, Boston MA, 02115

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EDUCATION

Ph.D. Chemistry emphasis Bioinorganic Chemistry

December 2006- University of South Florida, Tampa FL

Advisor: Dr Li-June Ming

Dissertation title: 'Copper and Iron Complexes of Linear and Crosslinked Polymers as Catalysts for Phosphoester Hydrolysis and Oxidative Transformation of Phenolic and Catecholic Substrates'

B.S. Chemistry

May 2000- University of South Florida, Tampa FL

Completed all courses up to junior-senior level at the Department of Chemistry, University of Crete, Heraklion Greece, transferred to University of South Florida May 1998

PROFESSIONAL EXPERIENCE

Assistant Teaching Professor

Department of Chemistry & Chemical Biology Northeastern University Aug 2015-present

Laboratory Educational Manager

Department of Chemistry & Chemical Biology, Northeastern University Aug 2014-Aug 2015

Senior Instructor and Director of General Chemistry Laboratories Aug 2013-Aug 2014

Department of Chemistry, University of South Florida

Instructor I and Director of General Chemistry Laboratories Jan 2008-July 2013

Department of Chemistry, University of South Florida

Visiting Instructor Aug 2006-Dec 2007

Department of Chemistry, University of South Florida

Adjunct Instructor Jan 2006 –May 2006

Department of Chemistry, University of Tampa

HONORS AND AWARDS

- ACS-Division of Chemical Education (CHED) Travel Award to support attendance at an International Conference in 2011
- Alexiou Award in Environmental Chemistry for 2005, University of South Florida Chemistry Department
- Sharp Award for Summer 2004, University of South Florida, Chemistry Department
- Best Oral Presentation Award, Annual Raymond Castle Conference 2003, University of South Florida

AFFILIATIONS

American Chemical Society, Bioinorganic and Chemical Education Divisions

PROFESSIONAL DEVELOPMENT-WORKSHOPS

- ‘Preparing TAs for leadership in STEM education’, Cottrell Scholars Collaborative- National Teaching Assistant Workshop May 2015, Georgia Institute of Technology, Atlanta GA.
Workshop to help facilitate broad adoption of interactive and evidence-based teaching and learning strategies by harnessing the immense potential of teaching assistants (TAs). Teams of one "master" TA and faculty member from Physics or Chemistry Departments are eligible to apply. Co-attended workshop with NEU graduate teaching assistant John De La Parra (Advisor Dr Carolyn Lee-Parsons).
- CATLR Workshops and Summer Institutes *focusing on implementing project based learning (PBL) and team based learning (TBL), developing hybrid courses, teaching honors courses, Northeastern University, Boston MA, Fall 2014-15.*
- ‘Transforming STEM education at USF’ supported by NSF Grant DUE 1347753.
Series of invited lectures by national leaders and faculty targeted literature discussion aiming to transform STEM education in a large urban-serving university and increase retention of STEM majors, especially underrepresented groups, University of South Florida, Tampa FL, December 2013-2014.
- ‘cCWCS workshop-Materials Science & Nanotechnology’
NSF funded workshop focusing on a chemical view of materials science and the nanoworld and how to incorporate these topics into the core curriculum, Beloit College WI, July 21-26, 2013.
- ‘cCWCS workshop-Chemical Education: Supporting Student Laboratory Learning through Chemistry Collaborations, Workshops and Communities of Scholars’
NSF funded workshop on new approaches to laboratory instruction based on principles established for faculty development and student laboratory instruction, Chicago IL, June 3-8, 2012.
- ‘ACELL-Advancing Chemistry by Enhancing Learning in the Laboratory’
NSF funded workshop to support research-based problem and inquiry learning strategies in laboratory instruction, Purdue, IN, May 20-24, 2012.
- ‘Workshops on Teaching Innovation and Technology in Course Development’
Workshop focused on innovative pedagogies (e.g. flipped classroom) and use of various software tools- Articulate Engage, Canvas, Advanced Blackboard, Developing Multimedia, Softchalk, Academy of Teaching and Learning Excellence (ATLE) and eTG center (e-Teaching and technology Group), Tampa FL, Spring 2012- Summer 2013.
- ‘National Center for Academic Transformations (NCAT)’ *Series of webinars and day long workshop sponsored by Student Success Center aimed to familiarize key faculty in alternative models of instruction to address student difficulties in large enrolment courses, University of South Florida, December 2011.*
- ‘Process Oriented Guided Inquiry Learning (POGIL) and the Science Writing Heuristic (SWH)’ *Workshop focused on implementing the Science Writing Heuristic in laboratory instruction, Warrensburg, MO, July 21-23, 2008.*

SYMPOSIA ORGANIZATION

'Research on Learning in the Laboratory', S. Sandi-Urena, V. Lykourinou T. Gatlin, A. Villalta-Cerdas, International Conference on Chemical Education (ICCE), Toronto Canada, July 13 –18, 2014.

PUBLICATIONS

1. John de la Parra, Julian Stanley, Suraya Foster, Carolyn Webb, Vasiliki Lykourinou* **Crafting a More Environmentally Benign Extraction and Analysis of Pharmaceutical Precursors from a Medicinal Plant: A Student-Led Innovation**, *J. Chem. Ed.*, under review
2. Vasiliki Lykourinou, Li-June Ming* **Mechanistic Insight into Phenol Oxidation by a Copper(II) Complex of a Pyridine/Amide-Containing Copolymer in Aqueous Medium**, *Eur. J. Inorg. Chem.*, **2015**, 3, 368-369, *Issue Cover*.
3. Yao Chen, Vasiliki Lykourinou, Tran Hoang, Li-June Ming, Shenqian Ma* **Size-Selective Biocatalysis of Myoglobin Immobilized into a Mesoporous Metal-Organic Framework with Hierarchical Pore Sizes**, *Inorg. Chem.*, **2012**, 51, 9156-9158.
4. Yao Chen, Vasiliki Lykourinou, Carissa Vetromile, Tran Hoang, Li-June Ming, Randy Larsen and Shenqian Ma* **How Can Proteins Enter the Interior of a MOF? Investigation of Cytochrome c Translocation into a MOF Consisting of Mesoporous Cages with Microporous Windows**, *J. Am. Chem. Soc.*, **2012**, 134, 13188-13191.
5. Adrian Villalta-Cerdas, Todd Gatlin, Vasiliki Lykourinou* **Curriculum Design, Implementation and Assessment to Support Learning in General Chemistry Labs**, *Proceedings of ICCE-ECRICE Conference*, **2012**, Rome Italy, submitted.
6. Vasiliki Lykourinou, Yao Chen, Xi-Sen Wang, Tran Hoan, Li-June Ming, Ronald Musselman, Shengqian Ma* **Immobilization of MP-11 into a Mesoporous Metal–Organic Framework, MP-11@mesoMOF: A New Platform for Enzymatic Catalysis**, *J. Am. Chem. Soc.*, **2011**, 133, 10382-10385.
7. Le Wang, Yong Ye, Vasiliki Lykourinou, Alexander Angerhofer, Yufen Zhao, Li-June Ming* **Metal Complexes of Multidentate Cyclophosphazene with Imidazole-containing Side Chains for Hydrolyses of Phosphoesters-Bimolecular vs Intramolecular Dinuclear Pathway**, *Eur. J. Inorg. Chem.*, **2011**, 674-682.
8. Vasiliki Lykourinou, Ahmed I. Hanafy, Kirpal S. Bisht, Alexander Angerhofer, Li-June Ming*, **Iron(III) Complexes of Metal-Binding Copolymers as Proficient catalysts for Acid Hydrolysis of Phosphodiester and Oxidative DNA Cleavage**, *Eur. J. Inorg. Chem.*, **2009**, 9, 1197-1207.
9. Giordano F. da Silva, Vasiliki Lykourinou, Alex Angerhofer, Li-June Ming*, **Methionine Does Not Reduce Cu(II)- β -Amyloid-Rectification of the Roles of Methionine-35 and Reducing Agents in Metal-centered Oxidation Chemistry of Cu(II)- β -amyloid**, *Biochimica et Biophysica Acta*, **2009**, 49, 1792.
10. Vasiliki Lykourinou-Tibbs, Ahmed Hanafy, Giordano F. Z. DaSilva, Kirpal Bisht, Randy Larsen, Brian T. Livingston, Alex Angerhofer, Li-June Ming*, **How Well Should The Active Site and the Specific Recognition Be Defined for Proficient Catalysts?** *Eur. J. Inorg. Chem.* **2008**, 16, 2584–2592.

11. Ahmed Hanafy, Vasiliki Lykourinou-Tibbs, Kirpal S. Bisht, Li-June Ming* **Effective Heterogeneous Hydrolysis of Phosphodiester by Pyridine-containing Metallopolymers**, *Inorg. Chim. Acta*, **2005**, 358, 1247-1252.
12. Vasiliki Lykourinou-Tibbs, Altan Ercan, Li-June Ming* **Iron(III)-Chelex Resin Complex as Prototypical Heterogeneous Catalyst for Phosphodiester Hydrolysis**, *Catalysis Communications*, **2003**, 4, 549-553.
13. Chris Corcoran, Vasiliki Lykourinou, Andrew Terentis, Alexander Andgerhofer, Li-June Ming* **Iron(III) Complex of 4-Vinylpyridine-Acrylamide Copolymer as a Prototype for Effective Aromatics Degradation by Biomimetic Metallopolymers: Catechol Dioxygenase Activity**, *manuscript in preparation*.
14. Vasiliki Lykourinou, Li-June Ming* **Phenol Hydroxylation and Oxidation by Cu(II)-Complex of Pyridyl Containing Copolymer in Aqueous Medium**, *manuscript in preparation*.
15. Le Wang, Yong Ye, Vasiliki Lykourinou, Junliang Yang, Alexander Angerhofer, Yufen Zhao, Li-June Ming* **Mechanistic Insights into Oxidative Activity of Cyclotriphosphazene-Based Multinuclear Copper Complexes in Aqueous Medium**, *manuscript in preparation*.
Corresponding author is designated with an asterisk *

BOOK CHAPTER

'Metalloproteins and Metallopeptides-Natural Metallofoldamers' by Vasiliki Lykourinou and Li-June Ming in *Metallofoldamers: Supramolecular Architectures from Helicates to Biomimetics* (Editors: Marcus Albrecht and Galia Maayan), John Wiley & Sons, pp 1-30, expected publication 2013.

PATENTS

Yao Chen, Vasiliki Lykourinou, Li-June Ming, Shenquian Ma 'Polyhedral Cage-Containing Mesoporous Metal-Organic Frameworks as Platform for Biocatalysis' August 2, 2016, Patent Number 9404105.

LIST OF PRESENTATIONS AND PUBLISHED ABSTRACTS

- Vasiliki Lykourinou, John de la Parra, Thomas Gilbert, Carolyn Lee-Parsons, Alejandro Rovira, Shannon Song, Sylvie Dufort **Linking Learning to Real Life Research Goals: Biofuel Production and Analysis in the Classroom and the Laboratory**, ACS National Conference, 2015, Boston, MA, Oral Presentation.
- Vasiliki Lykourinou, Thomas Gilbert, Carolyn Lee-Parsons, Alejandro Rovira, Shannon Song **Experiential Learning Through Course Development and Implementation of a Green Chemistry Laboratory**, Gordon Research Conference, 2015, Bates College, ME, Poster Presentation.
- Vasiliki Lykourinou, Thomas Gilbert, Carolyn Lee-Parsons, Alejandro Rovira, Shannon Song, Sylvie Dufort, **Experiential Learning Through Course Development and Implementation of a Green Chemistry Laboratory**, Conference for Advancing Evidence-based Teaching, May 2015, Northeastern University, Boston, MA, Oral Presentation.
- Vasiliki Lykourinou, Todd Gatlin, Adrian Villalta-Cerdas, **Outcomes, Strategies and Challenges in the Implementation of Authentic Chemistry Experiments in the Introductory**

Lab Curriculum, 5th EuroVariety Conference In Chemistry Education, July 2013, Limerick Ireland, Oral Presentation.

- Vasiliki Lykourinou, Adrian Villalta-Cerdas, Todd Gatlin, **Curriculum Design, Implementation and Assessment to Support Learning in General Chemistry Labs**, 22nd Biannual Conference on Chemical Education (BCCE), July-August 2012, PennState University, College Station, PA, Oral Presentation.
- Vasiliki Lykourinou, Adrian Villalta-Cerdas, Todd Gatlin, **Curriculum Design, Implementation and Assessment to Support Learning in General Chemistry Labs**, 22nd International Conference on Chemical Education and 11th European Conference on Research in Chemical Education (ICCE-ECRICE), July 2012, Rome Italy, Poster Presentation.
- Vasiliki Lykourinou, **Contrasting Pedagogical Training and Practices in Tertiary Education in European and American Universities**, National ACS Meeting and Exposition, March 2012, San Diego CA, *Invited Oral presentation in 'International and Multicultural Perspectives' Symposium*.
- Vasiliki Lykourinou, **The Science Writing Heuristic in Large Enrollment General Chemistry Labs**, 4th EuroVariety Conference in Chemistry Education, September 2011, Bremen Germany, Oral Presentation.
- Vasiliki Lykourinou, **Implementation of Science Writing Heuristic in Large Enrollment Laboratory Courses**, 21st Biannual Conference on Chemical Education (BCCE), August 2010, Denton TX, Oral presentation.
- Vasiliki Lykourinou, **Implementation of Science Writing Heuristic in Large Enrollment Laboratory Courses**, POGIL workshop, 240th National ACS Meeting and Exposition, August 2010, Boston MA, Oral Presentation.
- Vasiliki Lykourinou, Ahmed I. Hanafy, Li-June-Ming, **Antioxidant Activity of Phytochemicals towards Oxidation of Neurotransmitters by Cu(II)-(4-vinylpyridine-co-acrylamide) Copolymer Complex**, Florida American Chemical Society meeting (FAME)-Biochemistry Section, May 2005, Orlando Florida, Oral Presentation.
- Vasiliki Lykourinou, Ahmed I. Hanafy, Li-June-Ming, **Heterogeneous Catalysis by Pyridine Containing Metallopolymers**, Florida American Chemical Society meeting (FAME)-Metal Organic Section, May 2004, Orlando Florida, Oral Presentation.
- Vasiliki Lykourinou, Li-June-Ming, **Chemical Nucleases-polymer Based Metal Complexes as Catalysts in Phosphoester and DNA Hydrolysis**, Raymond Castle Conference, April 2003, University of South Florida, Tampa FL, Oral Presentation.
- Vasiliki Lykourinou, Li-June-Ming, **Heterogeneous Metal-centered Hydrolysis of Phosphodiester/Phosphonoesters**, National American Chemical Society meeting, May 2002, Orlando FL, Oral Presentation.

GRANTS AND AWARDS

Faculty Scholars Award, CATLR, Northeastern University, *Spring 2016*.

Provisional Award due to transition to Teaching Faculty position (effective Spring 2016-17).

'Integration of Cooperative, Project-based, Authentic Experiments in the General Chemistry Laboratory Program at the University of South Florida' PI Santiago Sandi-Urena, Co-PI Vasiliki Lykourinou, NSF-TUES, *submitted May 2012 (resubmission awaits solicitation announcement under the new NSF-CAUSE program)*.

MENTORING STUDENTS IN UNDERGRADUATE RESEARCH EXPERIENCE

In collaboration with Drs Lee-Parsons and Gilbert, Northeastern University.

Co-mentored first year undergraduate honors students (listed below) with support provided by the Honors and Scholars Early Research Assistanship. The students assisted in the development of green chemistry laboratory projects and online course material to be used in future implementation of revised general chemistry laboratory courses:

Spring 2015

Alejandro Rovira- Honors and Scholars Program, Shannon Song-Honors Program

Sylvie Dufort- Honors and Scholars Program, Harumi Harakawa- Honors Program

Alicia Stoebenau- Honors and Scholars Program.

Spring 2015

Alejandro Rovira

Julian Stanley

Suraya Foster

Fanny Nordlund

Virginie Larouche

Sarah Brennan

Sally Reyo

Carolyn Webb

In collaboration with Professor Li-June Ming, University of South Florida:

Chris Corcoran, 2007-2009, BS in Chemistry 2009 (PhD student at University of Illinois, Urbana-Champaign)

Navin Singh, 2009-2011, BMS in Chemistry 2011 (Student at USF Medical School)

Sibel Demirel, 2009-2011, BMS in Chemistry 2011 (Student at St George Medical School UK)

Ruben Durand, 2009-2011, BMS in Chemistry 2011 (Student at Medical School of the Caribbean)

Daniel Leyva, 2009-2011, Bachelors in Engineering 2011 (Graduate student USF School of Engineering)

Eduardo Cruz, 2010-2011, BMS 2011 (Student at Dental School Puerto Rico)

Elizabeth Desposito, 2011-current, senior undergraduate student BMS program- accepted to school of Pharmacy-USF

Erin Fagan-Senior undergraduate student BMS program- USF Honor's College

TEACHING EXPERIENCE-COURSES TAUGHT

Northeastern University

General Chemistry Laboratory (CHM 1212 Honors)

Fall 2014. Total course enrollment 36 students (two sections). Pilot implementation of newly designed laboratory curriculum to introduce project based learning (PBL) and the concepts of green chemistry and sustainability in laboratory work.

General Chemistry Lecture (CHM 1211)

Spring 2015. Total course enrollment 60 students. Large enrollment lecture course aimed at familiarizing students with fundamental concepts of general chemistry. Guided students through lectures, small group in-class activities using targeted ChemConnections discussion topics and using continuous in-class assessment through use of clickers to identify difficulties and familiarity with course material.

University of South Florida

General Chemistry Laboratory Courses (CHM 2045L, CHM 2046L, CHS 2440L)

Fall 2007-Spring 2013. Course enrollment 1600-2000 per semester.

Laboratory Course Coordination-oversee the development of course curriculum, supporting student and GTA educational material, design and maintenance of online Blackboard contents. Training and supervision of approximately 30 graduate teaching assistants (GTAs) involved in the instruction of 1600-2000 freshman undergraduate students. Organization and delivery of a weeklong training for new GTAs and continuous monitoring and evaluation of the GTAs instructional efforts. Oversee student's progress and grade submission each semester. Curriculum development- ACE Labs (Authentic Cooperative Experiment Labs):

<http://chemistry.usf.edu/undergraduate/genchem/>

Graduate Instruction Methods (CHM 6946)

Fall 2007-Spring 2013. Course enrollment: 12-16 GTAs per semester.

Course designed to support training of new Graduate Teaching Assistants (GTAs). Course aims to engage new GTAs in a variety of useful activities and literature discussions and complete their teaching orientation. Increase familiarity of GTAs with the university culture, the laboratory curriculum and its learning goals, strategies and current pedagogies to improve laboratory learning, strategies to handle student's difficulties and best practices in hazardous/conflicting situations encountered in the chemistry teaching laboratory.

Clinical Chemistry Courses (CHS 4300 Lecture, CHS 4301L Laboratory)

Lecture and Laboratory courses aimed at engaging students in (a) discussing fundamental applications of chemistry and biochemistry in the diagnosis of human diseases, (b) examine how human diseases relate to changes in the function of these organs, and (c) discuss methods and techniques to monitor function of healthy and disease states of relevant organs.

Lecture Course Fall 2009-2012 (offered only in Fall semesters). Class enrollment 60 students. Short lectures and group assigned case studies using patient's clinical data. Create problem-based learning environment commonly used in medical school learning environment (PBL- problem based learning).

Laboratory Course Spring 2012-2013 (offered only in Spring semesters). Class enrollment 16 students. Related to the lecture course. Use of assays common in the Clinical Laboratories to analyze serum samples and simulate disease states of the kidney, liver and heart.

Introduction to Biochemistry (CHM 3023)

Fall 2008. Class enrollment 190 students. Team taught (with Dr David Merkler). Introduction to biochemistry in large lecture format. Familiarize student with basic amino acid function and chemistry, protein and DNA structural and functional components and the main biochemical pathways maintaining cellular functions.

General Chemistry I Lecture (CHM 2045)

Fall 2007 and Spring 2008. Class enrollment 190 students. Large enrollment lecture course aimed at familiarize students with fundamental concepts of general chemistry. Guided students through lectures, small group in-class activities and continuous in-class assessment using clickers to identify difficulties and familiarity with course material.

Historical Perspectives of Chemistry (CHM 4070)

Spring 2011. Class enrollment 60 students. Guiding students through discussions related to major historical development or fundamental theories in chemistry. Small group discussions and presentations coupled with short lectures, viewing and commenting on media to convey major figures and their contributions to the development of the discipline of chemistry.

Peer Leading for Chemistry (CHM 4932)

Spring 2009 (co-taught with Dr Jennifer Lewis) and Spring 2010. Class enrollment 16 students. Guide junior/senior students selected as peer leaders for small group discussion sessions from the general chemistry lecture sections. The course help familiarize peer leaders with the concepts and educational goals of the group discussions in the small group sections they lead.

Methods of Chemical Investigation (CHM 4130C)

Spring 2011-2012. Team taught course by faculty group in chemistry (coordinator Dr Abdul Malik). Course enrollment 30 students. Responsible for lecture and lab organization of the 'enzyme kinetics' two-weeks module.

Professional Development Institute for K-12 Science Teachers

Spring-Summer 2009 and 2010. Institute participants: 16 science teachers from elementary through high school. Responsible for the development and delivery of educational material and instruction for the two-week institute by a team of College of Arts and Sciences (CAS) faculty from University of Florida, Florida State University and University of South Florida. Funded through the PROMiSE grant (Partnership to Rejuvenate and Optimize Mathematics and Science Education)-Florida Department of Education.