ELENA N. LARICHEVA

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EDUCATION

2012 **Ph.D.**, Computational Chemistry
Bowling Green State University, Center for Photochemical Sciences

2012 **Graduate Certificate,** Bioinformatics, Proteomics/Genomics
Bowling Green State University & University of Toledo

2007 **M.Sc.**, Organic Analytical Chemistry
Saint Petersburg State University, Russia

2005 **B.Sc.**, Organic Analytical Chemistry
Saint Petersburg State University, Russia

TEACHING EXPERIENCE

Lecturer | 09.2015–present
Utah Valley University, Department of Chemistry

- *CHEM 496R Biomolecular Modeling: Fundamentals and Applications*
  Designed and piloted an upper division special topics course on biomolecular modeling that develops practical skills needed to operate in a UNIX-based environment, set up, run and analyze molecular dynamics simulations of biomolecules, and perform computer-aided structure-based drug design.

- *CHEM 1210/1220 General Chemistry I and II*
  CHEM 1215/1225 General Chemistry I and II Labs
  Developed a set of guided inquiry learning activities for the general chemistry curriculum that allowed to flip the classroom and promote active learning and student engagement

Lecturer | 08.2013–12.2013 & 08.2014–12.2014
University of Michigan, Department of Chemistry

- *CHEM 130 General Chemistry*
- *CHEM 260 Chemical Principles*
  Developed and taught course materials in quantum chemistry, thermodynamics and kinetics, facilitated classroom discussions and weekly recitations.

Graduate Teaching Assistant | 08.2007–08.2012
Bowling Green State University, Center for Photochemical Sciences

- *CHEM 100 Introduction to Chemistry*
- *CHEM 109 Elementary Chemistry*
- *CHEM 125/128 General Chemistry I and II*
- *CHEM 341/346 Organic Chemistry I and II*

Undergraduate Teaching Assistant | 05.2007–08.2007
St-Petersburg State University (Russia), Department of Chemistry
Assisted in teaching quantitative analysis labs, instructed students on the use of high-performance liquid and gas chromatography; maintained instrumentation in working condition.

RESEARCH EXPERIENCE

Postdoctoral Research Fellow | 08.2012 – 07.2015
University of Michigan, Department of Chemistry, Brooks Lab

- Explored structural transitions in G-protein coupled receptors;
- Investigated mechanisms of pH-dependent spectroscopic properties of fluorescent proteins;
- Elucidated structural details of pH-dependent biological trafficking of folate receptors.

Graduate Research Assistant | 08.2007 – 08.2012
Bowling Green State University, Center for Photochemical Sciences, Olivucci's Lab

- Investigated mechanisms of fluorescence in proteins and organic radical cations;
- Obtained 560,000 CPUs at the NSF XSEDE through research proposal *"Turning on Fluorescence: Towards in Silico Design of Rhodopsin-Based Fluorescent Proteins."*

Scientific Database Operator | 05.2006 – 05.2007
Scite Ltd. (Russia) for MDL Information Systems and Beilstein GmbH (Germany)

- Analyzed and systematized experimentally validated information on the new synthesized organic substances to maintain Beilstein database.

Undergraduate Research Assistant | 08.2004 – 08.2007
Institute for Analytical Instrumentation, Russian Academy of Sciences &
St. Petersburg-State University, Department of Chemistry, Russia

- Developed and optimized electrophoretic method for the early diagnostics of microalbuminuria which is the marker of renal dysfunction in diabetics.

PUBLICATIONS (PEER-REVIEWED)

1. **Elena N. Laricheva**, Garrett Goh, Alex Dickson, and Charles L. Brooks, III. pH-dependent transient conformational states control optical properties of cyan fluorescent protein. *J. Am. Chem. Soc.*, **2015**, 137(8), 2892–2900.
2. Garrett Goh, **Elena N. Laricheva**, and Charles L. Brooks, III. Uncovering pH-dependent transient states of proteins with buried ionizable residues. *J. Am. Chem. Soc.*, **2014**, *136(24)*, 8496–8499.
3. **Elena N. Laricheva**, Karunesh Arora, Jennifer L. Knight, and Charles L. Brooks, III. Deconstructing activation events in rhodopsin. *J. Am. Chem. Soc.*, **2013**, *135(30),* 10906–10909.
4. **Elena N. Laricheva**, Samer Gozem, Silvia Rinaldi, Federico Melaccio, Alessio Valentini, and Massimo Olivucci. Origin of fluorescence in 11-*cis* locked bovine rhodopsin. *J. Chem. Theory Comput.,* **2012**, *8*, 2559–2563.
5. Jakob Grilj, **Elena N. Laricheva**, Massimo Olivucci, and Eric Vauthey. Fluorescence of radical ions in liquid solutions: Wurster's Blue as a case study. *Angew. Chem. Int. Ed.*, **2011**, *50*, 4496–4498.
6. Igor Schapiro, Federico Melaccio, **Elena N. Laricheva**, and Massimo Olivucci. Using the computer to understand the chemistry of conical intersections. *Photochem. Photobiol. Sci.,* **2011**, *10*, 867–886.

BOOK CHAPTER (CONTRIBUTOR)

1. Data Mining, Big Data and Massive Data. In: Trego, A.; Becker, P.; Hanewicz, C.; Arendt, A. Understanding Technology. Chapter 14: Data Mining and Buisness Intelligence. 1st Ed, Kendall Hunt Publishing. **2016**

OTHER PUBLICATIONS (NON PEER-REVIEWED)

1. **Elena N. Laricheva. Why is green the color of poison?** MEL Science Blog. http://blog.melscience.com/en/2015-05-13-why-is-green-the-color-of-poison.html
2. **Elena N. Laricheva. DNA-based technologies that will change your life.** MEL Science Blog. http://blog.melscience.com/en/2015-03-06-dna-based-technologies-that-will-soon-change-your-life.html
3. **Elena N. Laricheva. What if Oscar Awards were made of antimatter?** MEL Science Blog. http://blog.melscience.com/en/2015-02-26-what-if-oscar-awards-were-made-of-antimatter.html
4. **Elena N. Laricheva. What does the British queen have to do with chemistry?** MEL Science Blog. http://blog.melscience.com/en/2015-02-16-british-queen-and-chemistry.html

AWARDS

2013 Graduate College Distinguished Dissertation Award, Bowling Green State University

CONFERENCES AND PRESENTATIONS

1. **Elena N. Laricheva**. Sci-Hub and the ethics of academic publishing. *UVU Ethics Awareness week, 2016, Utah Valley University, Orem, UT USA**. (oral talk & panel discussion).***
2. **Elena N. Laricheva**, Garrett B. Goh, Alex Dickson, and Charles L. Brooks, III. Fluorescent proteins as pH sensors: Insights from constant pH molecular dynamics. *298th ACS National Meeting, 2014, Denver, CO USA* **(oral talk).**
3. Garrett B. Goh**, Elena N. Laricheva,** Afra Panahi, and Charles L. Brooks, III. Uncovering physiologically relevant hidden conformations of proteins with constant pH molecular dynamics. *248th ACS National Meeting, 2014, San Francisco, CA USA* **(contributing author).**
4. **Elena N. Laricheva,** Karunesh Arora, Jennifer L. Knight, and Charles L. Brooks, III. Activation events in rhodopsin: Insights from constant pH molecular dynamics simulations. *246th ACS National Meeting, Indianapolis, IN USA* **(invited talk).**
5. **Elena N. Laricheva**, Karunesh Arora, Jennifer L. Knight, and Charles L. Brooks, III. Exploring structural transitions in G-protein coupled receptors. *The 45th Midwest Theoretical Chemistry Conference, 2013, University of Illinois Urbana-Champaign, IL USA* **(oral talk).**
6. **Elena N. Laricheva**, Samer Gozem, Silvia Rinaldi, Federico Melaccio, Alessio Valentini, and Massimo Olivucci. *Ab initio* multi-configurational study of fluorescence: From small organic radical cations to complex light-sensitive proteins. *244th ACS National Meeting, 2012, Philadelphia, PA USA* **(oral talk).**
7. **Elena N. Laricheva,** Jakob Grilj, Massimo Olivucci, and Eric Vauthey. Temperature-dependent fluorescence of the Wurster's Blue Radical Cation. *19th Inter-American Photochemical Society Winter Conference, January 2-5, 2009, St. Pete Beach, FL USA* **(poster).**
8. **Elena N. Laricheva,** Jakob Grilj, Massimo Olivucci, and Eric Vauthey. Fluorescence of Wurster's Blue radical cation is controlled by a conical intersection*. 64th OSU International Symposium on Molecular Spectroscopy, Mini-Symposium on Conical Intersection, June 22-26, 2009, Columbus, OH USA* **(oral talk).**
9. Bessonova E.A., **Laricheva E.N.,** Shmukov A.U., Kartsova L.A. Determination of albumin in urine by capillary electrophoresis. *International Conference Analytical Chemistry and Chemical Analysis (AC&CA-05), September 12-18, 2005, Kyiv, Ukraine* **(poster).**

TEACHING TRAININGS AND WORKSHOPS

2016 **Intermountain Great Teachers Summit**
Heber City, Utah

2016 **Fall Conference: Engaging Today's Students**
Utah Valley University
Orem, UT

2013 **Post-Doctoral Short Course on College Teaching in Sciences and Engineering**
University of Michigan, Center for Research on Learning and Teaching
Developed syllabus and practice lessons for undergraduate course in molecular modeling.

2013 **Second Biennial Midwest P3 Postdoc to PUI workshop**
Hope College, Holland, MI

AFFILIATIONS

- Reviewer for the Journal of Computational Chemistry (JCC)
- Reviewer for the Journal of Theoretical and Computational Chemistry (JTCC)