

PARISA YASINI

Department of Chemistry, Temple University

Beury Hall, 1901 N. 13th Street

Philadelphia, Pennsylvania 19122

Email: parisa.yasini@temple.edu

Office: (215) 204 9709

EDUCATION

Ph.D. Candidate in Chemistry (2015-present)

Temple University, College of Science and Technology, Department of Chemistry, Philadelphia, Pennsylvania

Research Topic: *"Fabrication of molecular junctions to measure and modulate charge transport through a single molecule using the electrochemical scanning tunneling microscopy (EC-STM) and break junction method (BJ)"*

Advisor: Professor Eric Borguet

GPA: 3.88

M.Sc. Chemistry (2015-2019)

Temple University, College of Science and Technology, Department of Chemistry, Philadelphia, Pennsylvania

Research Topic: *"Fabrication of molecular junctions to measure and modulate charge transport through a single molecule using the electrochemical scanning tunneling microscopy (EC-STM) and break junction method (BJ)"*

Advisor: Professor Eric Borguet

GPA: 3.88

M.Sc. Analytical Chemistry (2010-2013)

University of Tehran, College of Science, School of Chemistry, Tehran, Iran

M.Sc. Thesis: *"Combination of In-Situ Solid Phase Extraction and Atomic Absorption Spectroscopy for Pre-concentration and Determination of Heavy Metals in Real Samples and Optimization with Chemometric Methods"*

Advisor: Dr. Farzaneh Shemirani

GPA: 18.29 out of 20

B.Sc. Pure Chemistry (2005-2010)

Shahid Beheshti University, School of Chemistry, Tehran, Iran

TECHNICAL SKILLS

Scanning Tunneling Microscopy (STM)-Keysight (Molecular Imaging)

- Experienced in ex-situ (ambient) and in-situ (aqueous and organic solvent) atomic resolution imaging on single crystal Au(111) and HOPG
- Scanning Tunneling Microscopy under electrochemical condition (EC-STM)
- Fabrication of gold, platinum-iridium and tungsten STM tips through mechanical cutting and electrochemical etching
- Scanning Tunneling Spectroscopy (STS) of 2D materials

Single Molecule Conductance (SMC)

- Design in-situ, ex-situ and potential control STM-Break Junction experiments
- Design and perform soft junction experiments

Atomic Force Microscopy (AFM)-Dimension Icon & Keysight (Agilent)

- Ex situ and in situ (aqueous and organic) high resolution imaging in different operation modes (contact, tapping and non-contact)

Transmission Electron Microscopy (TEM) (EOL JEM-1400)

- Nanoparticle and 2D material characterization

Atomic Absorption Spectroscopy

Raman Microscopy (LabRAM HR Evolution)

X-ray diffraction for material characterization (Bruker D8)

Electrochemical methods including cyclic voltammetry

PUBLICATIONS

Parisa Yasini, Sepideh Afsari, Haowei Peng, Piret Pikma, John P. Perdew, Eric Borguet, “Potential-Induced High-Conductance Transport Pathways through Single-Molecule Junctions”, *Journal of the American Chemical Society* 141(25), 10109-10116 (2019). [doi:10.1021/jacs.9b05448](https://doi.org/10.1021/jacs.9b05448) (Featured on the front cover).

Sepideh Afsari, **Parisa Yasini**, Haowei Peng, John P. Perdew, Eric Borguet, “Anisotropic Conductivity at the Single-Molecule Scale”, *Angewandte Chemie International Edition*, 58(40), 14275-14280 (2019). [doi:10.1002/anie.201903898](https://doi.org/10.1002/anie.201903898) (Featured on the cover and ranked as a “Hot Paper”).

Parisa Yasini, Stuart Shepard, Tim Albrecht, Manuel Smeu and Eric Borguet, “Combined Impact of Denticity and Orientation on Molecular-Scale Charge Transport”, *The Journal of Physical Chemistry C*, 124(17), 9460-9469 (2020). [doi:10.1021/acs.jpcc.9b10566](https://doi.org/10.1021/acs.jpcc.9b10566)

Pratap C. Naha, Jessica C. Hsu, Johoon Kim, Shrey Shah, Mathilde Bouché, Salim Si-Mohamed, Derick N. Rosario-Berrios, Philippe Douek, Maryam Hajfathalian, **Parisa Yasini**, Sanjay Singh, Mark A. Rosen, Matthew A. Morgan, and David P. Cormode, “Dextran-Coated Cerium Oxide Nanoparticles: A Computed Tomography Contrast Agent for Imaging the Gastrointestinal Tract and Inflammatory Bowel Disease”, *ACS Nano*, 14 (8), 10187-10197 (2020), [doi: 10.1021/acsnano.0c03457](https://doi.org/10.1021/acsnano.0c03457)

Parisa Yasini, Farzaneh Shemirani & Rouhollah Khani, “Combination of In Situ Surfactant-based Solid Phase Extraction and Central Composite Design for Pre-concentration and Determination of Manganese in Food and Water Samples” *Food Analytical Methods*, 5, 1303-1310, (2012), [doi:10.1007/s12161-012-9374-x](https://doi.org/10.1007/s12161-012-9374-x)

Parisa Yasini, Stuart Shepard, Manuel Smeu, and Eric Borguet, “Hammett Substituent Effect in Modulation of Charge Transport through Single Molecule Junctions”, (in preparation).

Farbod Alimohammadi, **Parisa Yasini**, Tim Marshall, Nuwan Attanayake, Eric Borguet, Daniel R. Strongin, “*Layer by Layer Deposition of 1T-MoS₂ towards a Better Hydrogen Evolution Catalyst*”, (in preparation).

Parisa Yasini, Stuart Shepard, Manuel Smeu, and Eric Borguet, “*Solvent Induced Conductance Switching of Twisted Intramolecular Charge Transport (TICT) based molecules*”, (Paper in preparation, anticipated submission: November 2020).

Parisa Yasini, Eric Borguet, “*Review paper: Single Molecule Conductance: Fundamentals, Measurement & regulation of Nanoscale Junctions*”, (Paper in preparation, anticipated submission: October 2020).

CONFERENCE

Oral presentation: Parisa Yasini, Sepideh Afsari, Piret Pikma, Eric Borguet, *Single Molecule Junction: Chemical Optimization of Charge Transport through Single Benzene Derivatives*, AVS 64th International Symposium & Exhibition, Tampa, Florida, USA, November 2017

Oral presentation: Piret Pikma, **Parisa Yasini**, Eric Borguet, *Fabrication of Single Molecule Polycyclic Aromatic Hydrocarbon Switches at an Electrochemical Interface*, 22nd Topical Meeting of the International Society of Electrochemistry, Tokyo, Japan, April 2018

Poster: Parisa Yasini, Sepideh Afsari, Lorraine Vernisse, Piret Pikma, Eric Borguet, *Single molecule electronics: Fabricating an on/off electromechanical single molecule conductance switch*, 252nd American Chemical Society National Meeting-Philadelphia, Pennsylvania, USA, August 2016

Poster: Parisa Yasini, Piret Pikma, Eric Borguet, *Single molecule electronics: Fabricating an on/off electromechanical single molecule conductance switch*, American Chemical Society-Young Chemist Committee-Philadelphia, Pennsylvania, USA, March 2017

Poster: Piret Pikma, **Parisa Yasini**, Eric Borguet, *In situ STM study of the effect of applied potential on the adsorption and electrical conductivity of NDA*, American Chemical Society-Young Chemist Committee-Philadelphia, Pennsylvania, USA, March 2017

Poster: Parisa Yasini, Piret Pikma, Eric Borguet, “*Charge Transport Measurements through Single Benzene Derivatives*”, American Chemical Society-Young Chemist Committee-Philadelphia, Pennsylvania, USA, April 2018.

Poster: Parisa Yasini, Sepideh Afsari, Haowei Peng, Piret Pikma, John P. Perdew, Eric Borguet, “*Potential-induced high-conductance transport pathways through single-molecule junctions*” CCM annual meeting-Philadelphia, May 2019.

Poster: Parisa Yasini, Sepideh Afsari, Haowei Peng, Piret Pikma, John P. Perdew, Eric Borguet, “*Orientation controlled single molecule junctions*”, American Chemical Society-Young Chemist Committee-Philadelphia, Pennsylvania, USA, January 2020.

Poster: Farbod Alimohammadi, **Parisa Yasini**, Eric Borguet, Daniel R. Strongin, “*In Situ Atomic Force Microscopy Study of Monolayer Birnessite Reduction*”, American Chemical Society-Young Chemist Committee-Philadelphia, Pennsylvania, USA, January 2020.

Poster: Parisa Yasini, Farzaneh Shemirani & Rouhollah Khani, *Application of Central Composite Design for Optimization of In-Situ Surfactant based Solid Phase Extraction for Pre-*

concentration and Determination of Manganese in Various Real Samples. 3th Iranian Biennial Seminar of Chemometrics, University of Tabriz, Tabriz, Iran, November 2011

TEACHING EXPERIENCE

Private tutor of university course (organic chemistry) and high school science and mathematics (2011 – 2012)
Instructor in General Chemistry I laboratory at Temple University (2015 – 2016)
Instructor in Introduction to research techniques laboratory at Temple University (present)

HONORS

2019 Award for Outstanding Research by a Graduate Student of the College of Science and Technology, Temple University

2019 Daniel Swern Fellowship for Outstanding Research, Chemistry Department, Temple University

2020 Award for the People's Choice best poster at the YCC poster session, Philadelphia, Pennsylvania, January 2020.

Ranked 3rd in GPA, Department of Analytical Chemistry, University of Tehran
Member at Organization of Talented Students of Iran

COMPUTER SKILLS

Microsoft Office
EndNote
ChemDraw/Chem3D
MATLAB/Origin/Igor Pro
Gwyddion (image processing/analyzing software)

LANGUAGE

English: Fluent
Persian (Farsi): Native

REFERENCES

Professor Eric Borguet, eborguet@temple.edu
Temple University, College of Science and Technology,
Chemistry Department

Professor Daniel Strongin, dstrongi@temple.edu
Temple University, College of Science and Technology,
Chemistry Department

Professor Yugang Sun, ygsun@temple.edu
Temple University, College of Science and Technology,
Chemistry Department