

Mohammad Pabel Kabir

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Education Background

Georgia State University, Atlanta, GA, USA Current
Candidate for Doctor of Philosophy in Biophysical and Computational Chemistry

University of South Carolina, Columbia, SC, USA. December 2016
Master of Science in Organic Chemistry
Thesis title: Cobaltocenium containing polymers: Complexation with organic anion and initial assessment for anion exchange membranes

University of Dhaka, Dhaka, Bangladesh October 2012
Master of Science in Physical Chemistry
Thesis title: Adsorption of Remazol Red (RR) onto chitosan from aqueous solution

University of Dhaka, Dhaka, Bangladesh February 2011
Bachelor of Science in Chemistry
Project title: Investigation of the change of surface tension of the mixture of different surfactants at different ratio with surfismeter

Research Experience

Graduate Researcher August 2017-present
Georgia State University, Atlanta, GA, USA
Department of Chemistry
Advisor: Samer Gozem

- Computationally investigated solvent effects on the absorption spectra of flavin
- Working toward the understanding of photochemical reaction mechanism of flavoproteins using QM/MM model
- Investigating the spectral tuning mechanism of iLOV flavoprotein using QM/MM models

Graduate Researcher August 2014-December 2016
University of South Carolina, Columbia, SC, USA
Department of Chemistry and Bio-chemistry
Advisor: Chuanbing Tang

- Worked on synthesis and applications of cobaltocenium containing polyelectrolytes
- Worked on alkaline anion exchange membranes for fuel cells (AAEMs)
- Investigated binding strength of polyelectrolytes toward organic small molecules

Graduate Researcher October 2010-May 2012
University of Dhaka, Dhaka, Bangladesh

Advisor: Md. Mufazzal Hossain

- Investigated adsorption of remazol red RR (commercially used in textile industry) onto chitosan from aqueous solution
- Comparatively study of adsorption of Remazol Red RR on chitosan and zinc oxide

Teaching Experience

Teaching Assistant

August 2017-present

Georgia State University, Atlanta, GA, USA Department of Chemistry

- Instructed Organic Chemistry I Lab (1212) once in a week for three semesters
- Instructed Physical Chemistry II tutorial (4121) for one semester
- Instructed Organic Chemistry II tutorial (3411) for one semester
- Conducted office hours to help students understand and solve homework problems

Teaching Assistant

August 2014-December 2016

University of South Carolina, Columbia, SC, USA Department of Chemistry and Bio-chemistry

- Instructed Organic I Lab and Organic II Lab, three times a week and Organic I Lab Recitation, once a week for two semesters
- Instructed Organic II Theory Recitation class of 90 students for three semesters
- Conducted office hours to help students understand and solve homework problems
- Wrote weekly quizzes, posted solutions online, graded quizzes and exams, kept record of the scores using Excel

Chemistry Teacher

October 2012-May 2013

Gateway International School, Dhaka, Bangladesh

- Instructed O-level and A-level Chemistry, five times a week and one hour each
- Created lesson plans, daily quizzes and term final exams
- Graded papers and performed other administrative duties as needed.
- Observed and evaluated student's performance and tutored students on an individual basis

Publications

- **Kabir, M.P.**; Orozco-Gonzalez, Y.; Gozem, S., "Electronic Spectra of Flavin in Different Redox and Protonation States: A Computational Perspective on the Effect of the Electrostatic Environment" *Phys. Chem. Chem. Phys.*, **2019**, Accepted
- Orozco-Gonzalez, Y., **Kabir, M. P.**, & Gozem, S. "Electrostatic Spectral Tuning Maps for Biological Chromophores" *The Journal of Physical Chemistry B*, **2019**, 123, 23, 4813-4824
- Su, D., **Kabir, M. P.**, Orozco-Gonzalez, Y., Gozem, S & Gadda, G. "Fluorescence Properties of Flavin Semiquinone Radicals in Nitronate Monooxygenase" *ChemBioChem*, **2019**
- Zhu, T., Xu, S., Rahman, A., Dogdibegovic, E., Yang, P., Pageni, P., **Kabir, M.P.**, Zhou, X.D. and Tang, C., "Cationic Metallo-Polyelectrolytes for Robust Alkaline Anion-Exchange Membranes" *Angewandte Chemie International Edition*, **2018**, 57, 9, 2388-2392
- Pageni, P., **Kabir, M. P.**, Yang, P., & Tang, C. "Binding of Cobaltocenium-Containing Polyelectrolytes with Anionic Probes" *Journal of Inorganic and Organometallic Polymers and Materials*, 2017, 1-10

- Yan, Y.; Pageni, P.; **Kabir, M. P.**; Tang, C. "Metallocenium Chemistry and Its Emerging Impact on Synthetic Macromolecular Chemistry" *Synlett*, **2016**, 27, 984– 1005
- Yang, P., Pageni, P., **Kabir, M. P.**, Zhu, T., Tang, C. "Metallocene-Containing Homopolymers and Heterobimetallic Block Copolymers via Photoinduced RAFT Polymerization" *ACS Macro Letters*, **2016**, 5, 1293-1300
- **Kabir, M. P.**; Islam, M. M.; Masum, S. M.; Hossain, M. M. "Adsorption of remazol red RR onto chitosan from aqueous solution" *Bangladesh J. Sci. Ind. Res.*, **2015**, 49, 111-118

Poster Presentations

- A Combined Quantum Mechanical and Classical Approach to Study Flavoproteins. Kabir, M.P., Orozco-Gonzalez Y, Gozem S. 10th Annual Southeast Enzyme Conference, Atlanta, GA. **2019**
- A Combined Quantum Mechanical and Classical Approach to Find a Red Shifting Mutant of Flavin-binding Fluorescent Proteins, Southeastern and Greater Atlanta Chemical Biology Symposium, Atlanta, GA. **2019**
- Modeling the spectral properties of flavin cofactor in different environments by using hybrid quantum/classical approaches. Kabir, M.P., Orozco-Gonzalez Y, Gozem S. Scientific Computing Day, GSU, Atlanta, GA. **2018**.
- A Combined Quantum Mechanical and Classical Approach to Model the Spectroscopy of the Flavin Cofactor in Different Environments. Kabir, M.P., Orozco-Gonzalez Y, Gozem S. First Annual Greater Atlanta Chemical Biology Symposium, Atlanta, GA. **2018**.
- A Combined Quantum Mechanical and Classical Approach to Model the Spectroscopy of the Flavin Cofactor in Different Environments. Kabir, M.P., Orozco-Gonzalez Y, Gozem S. 9th Annual Southeast Enzyme Conference, Atlanta, GA. **2018**

Fellowship

Molecular Basis of Disease (MBD) PhD fellowship, Atlanta, GSU, USA.

Proposal title: *"Insight into Structure-function relationships in the LOV flavoprotein photoreceptor"*

The MBD fellowship will be offered for maximum period of 3 years post-award, or until the completion of graduation, whichever is sooner. The fellowship will cover the full tuitions and provide stipend of \$ 25,000 per year. Contact: Ritu Aneja, Director, Molecular Basis of Disease Program, GSU, Atlanta, 404-413-5417

References

- **Prof. Samer Gozem**, Department of Chemistry, Georgia State University, Atlanta, GA, 30302, Phone: 404-413-5569, sgozem@gsu.edu
- **Prof. Chuangbing Tang**, Department of Chemistry & Bio-Chemistry, University of South Carolina, Columbia, SC, 29208, Phone: 803-777-3628, tang4@mailbox.sc.edu
- **Prof. Giovanni Gadda**, Department of Chemistry, Georgia State University, Atlanta, GA, 30302, Phone: 404-413-5537, ggadda@gsu.edu