

Patrick O. Saboe

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ACADEMICS

Doctor of Philosophy in Chemical Engineering, Department of Chemical Engineering, The Pennsylvania State University, University Park, PA, expected December 2017
Advisor: Dr. Manish Kumar

Bachelor of Science in Chemical Engineering, Department of Chemical Engineering, University of New Haven, West Haven, CT, 2007-2011, GPA: 3.98
Advisor: Dr. David Harding

EXPERIENCE

Visiting Researcher, National Institute of Standards and Technology (NIST), Center for Neutron Research, Gaithersburg, MD, 2014-2016
Project: Time resolved neutron scattering to examine kinetics of block copolymer exchange between micelles

Visiting Researcher, ETH Zurich, Department of Mechanical and Process Engineering, Hyung Gyu Park' Lab, Zurich, Switzerland, Spring 2015
Project: Porous graphene supported biomimetic membranes

Visiting Researcher, Harvard Medical School, Department of Cell Biology, Tom Walz' Lab, Boston, MA, Spring 2012
Project: Water permeability and pore regulation of mammalian eye lens protein, Aquaporin-0

Research Intern, Mascaro Center for Sustainable Innovation, University of Pittsburgh, Pittsburgh, PA, Summer 2010
Project: Coupled algae growth and wastewater treatment for linked biofuel production

AWARDS AND HONORS

- Chair, Gordon Research Seminar, Gordon Research Conference on “Membranes: Materials and Processes”, New London, NH, August 2016
- US Environmental Protection Agency (EPA) Science to Achieve Results (STAR) Fellowship, EPA, 2014 – 2016
- Honorable Mention, Graduate Research Fellowship Program, National Science Foundation, 2013
- Dow Sustainability Innovation Student Challenge Award (SISCA), Second Prize, Penn State University, 2012

- Student Award for Outstanding Academic, Personal and Professional Achievement in the Field of Chemical Engineering, AIChE, New Haven Section, 2011
- Award in Chemical Engineering for High Academic Achievement and Demonstrated Leadership, University of New Haven, 2010
- Alumni Association Scholarship, University of New Haven, 2010
- Eagle Scout Award, Boy Scouts of America, 2006

PUBLICATIONS

1. **Saboe, P.O.**,* Rapisarda, C.,* Kaptan, S., Hsiao, Y.S., Summers, S., De Zorzi, R., Dukovski, D., Yu, J., Groot, B.D., Kumar, M., Walz, T. “*Role of pore-lining residues in defining the rate and pH sensitivity of water conduction by aquaporin-0.*” (in preparation for the Biophysical Journal).
2. Schantz, A.B.,* **Saboe, P.O.**,* Sines, I.T., Lee, H.Y., Butler, P., Bishop, K.J.M., Kumar, M., Maranas, J. “*PEE-PEO block copolymer exchange rate between micelles is detergent and temperature activated.*” *Macromolecules*. (revised version submitted).
3. **Saboe, P.O.**, Conte, E., Farrell, M., Bazan, G.C., Kumar, M. “*Biomimetic approaches for wiring enzymes to electrode interfaces.*” *Energy and Environmental Science* (revised version resubmitted).
4. **Saboe, P.O.**, Conte, E., Chan, S., Feroz, H., Ferlez, B., Farrell, M., Poyton, M.F., Sines, I.T., Yan, H., Bazan, G.C., Golbeck, J., Kumar, M. “*Biomimetic wiring and stabilization of photosynthetic membrane proteins with block copolymer interfaces.*” *Journal of Materials Chemistry A* (in press).
5. Klara, S.S.,* **Saboe P.O.**,* Sines, I.T., Babaei, M., Chiu, P.L., DeZorzi, R., Dayal, K., Walz, T., Kumar, M., Mauter, M.S. “*Magnetically Directed Two-Dimensional Crystallization of Membrane Proteins in Block Copolymers*” *JACS*, 138 (2015)
6. Shen, Y., Si, W., Erbakan, M., Decker, K., De Zorzi, R., **Saboe, P.O.**, Kang, Y.J., Majd, S., Butler, P.J., Walz, T., Aksimentiev, A., Hou, J., Kumar, M. “*Highly permeable artificial water channels and their self-assembly into highly packed two-dimensional arrays.*” *PNAS*, 112 (2015)
7. **Saboe, P.O.**, Lubner, C., McCool, N., Vargas-Barbosa N., Yan, H., Chan, S., Ferlez, B., Bazan, G.C., Golbeck, J., Kumar, M. “*Two-dimensional protein crystals for solar energy conversion.*” *Advanced Materials*, 26 (2014)
8. Shen, Y., **Saboe, P.O.**, Sines, I., Erbakan, M., Kumar, M. “*Biomimetic Membranes: A Review.*” *Journal of Membrane Science*, 454 (2014)
9. Kumar, M., Shen, Y., **Saboe, P.O.** “*Biological and Biomimetic Membranes.*” *Encyclopedia of Membrane Science and Technology* 2013

*Contributed equally

INVITED PRESENTATIONS

1. **Saboe, P.O.**, “*Making membranes alive: Bioinspired membranes for biological electron transfer and biofouling inhibition*”, The National Renewable Energy Laboratory (NREL), Golden, CO, March 2016

CONFERENCE PRESENTATIONS

1. **Saboe, P.O.**, Lubner, C., McCool, N., Vargas-Barbosa N., Yan, H., Chan, C., Ferlez, B., Bazan, G., Golbeck, J., Kumar, M. “*Two-dimensional Protein Crystals for Solar Energy Conversion*” Presented at the Gordon Research Seminar, Photosynthesis, West Dover, VT, August 2014
2. **Saboe, P.O.**, Lubner, C., McCool, N., Vargas-Barbosa N., Yan, H., Chan, C., Ferlez, B., Bazan, G., Golbeck, J., Kumar, M. “*Photosynthetic membrane protein crystals for hydrogen production*” Presented at the North American Membrane Society 24rd Annual Meeting, Houston, TX, June 2014
3. **Saboe, P.O.**, Lubner, C., McCool, N., Vargas-Barbosa N., Golbeck, J., Kumar, M. “*Biomimetic two-dimensional crystals of photosynthetic proteins for membrane based energy production*” Presented at the American Institute of Chemical Engineers Annual Meeting, November 2013 and November 2014
4. **Saboe, P.O.**, Lubner, C., McCool, N., Vargas-Barbosa N., Golbeck, J., Kumar, M. “*Solar hydrogen production using biomimetic two-dimensional crystals of photosynthetic proteins*” Presented at the 246th American Chemical Society National Meeting and Exposition, Indianapolis, IN, September 2013