Aaron Benjamin Woeppel

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EDUCATION

University of Pittsburgh, Pittsburgh, Pa. May 2019
B.S. Chemical Engineering
Minor in Chemistry
GPA: 3.760 (*Summa Cum Laude*)
Undergraduate research: Finite Element Modeling of Polymer Electrolytes (Fall 2017 – Summer 2019)

RESEARCH INTERESTS

- Electrochemistry
- Nanoelectronics
- Polymers physics and chemistry
- Ionic and Molecular Mass Transport
- Materials Science and Chemistry

EMPLOYMENT/INTERNSHIP

University of Pittsburgh, Pittsburgh Pa

- ***Swanson School of Engineering Summer 2018 Undergraduate Research Internship*** Summer 2018
  - $4,000 award for twelve weeks of research. *Faculty advisor:* Susan Fullerton
  - Began mathematically relating mechanical polymer deformation to previously modeled selective ion drift.
  - Deposited single ion-conducting polymer on two-dimensional $MoTe_2$ field effect transistors (FETs) in an argon-filled glovebox.

- ***Undergraduate Researcher (average 20 hours/week)*** Fall 2017 – present
  - *Faculty advisor:* Susan Fullerton, Modeled electric field induced ion drift, electric double layer formation in single and dual ion conductors.

Four Seasons Golf Course, Landisville Pa

- ***Greenskeeper*** Summers, 2015-2017
  - Earned experience operating new large equipment and matured habits involving safely using handheld and large power tools.

PUBLICATIONS

1. Xu, K. *et al*. Electric Double-Layer Gating of Two-Dimensional Field-Effect Transistors Using Single-Ion Conductor. *ACS Appl. Mater. Interfaces* (2019).

PRESENTATIONS

- **Aaron Woeppel**, Ke Xu, Susan Fullerton. "Locally Induced Semiconductor-to-Metal Transition in Two-Dimensional Crystals Through Use of an Ionomer", *Graphene and Beyond* 5/8/19-5/9/19, University Park, PA, Poster.
- **Aaron Woeppel**, Ke Xu, Susan Fullerton. "Locally Induced Semiconductor-to-Metal Transition in Two-Dimensional Crystals Through Use of an Ionomer", *PQI 2019* 4/17/19, Pittsburgh, PA, Poster.
- **Aaron Woeppel**, Ke Xu, Susan Fullerton. "Modeling Electric Double Layer Formation and Strain Induced by a Single-Ion Conducting Polymer on a Two-Dimensional Crystal", *American Institute of Chemical Engineers 2018 Annual Meeting* 10/29/18, Pittsburgh, PA, Poster.
- M. Eli Bostian, Ke Xu, **Aaron Woeppel**, Hangjun Ding, James R. McKone, Eric J. Beckman, Susan Fullerton. "Fabrication and Characterization of Ionomer-gated $MoTe_2$ Field Effect Transistors", *American Institute of Chemical Engineers 2018 Annual Meeting*, 10/31/18, Pittsburgh, PA, Oral.

- **Aaron Woeppel,** Ke Xu, Susan Fullerton. *"*Locally Induced Semiconductor-to-Metal Transition in Two Dimensional Crystals Using an Ionomer*", Science 2018*, 10/19/2018, Pittsburgh PA, Poster.

- Ke Xu, Eli Bostian, **Aaron Woeppel**, Hangjun Ding, Eric Beckman, Susan Fullerton. "Using Ions to Control Transport in Two-Dimensional Materials for Ion-Controlled Electronics" *2018 IEEE 13th Nanotechnology Materials and Devices Conference* 10/14/2018-10/17/2018, Portland, OR, Oral

- Susan Fullerton-Shirey, Eli Bostian, Ke Xu, **Aaron Woeppel**, Hangjun Ding, Eric Beckman. "A New Approach to Accessing the Semiconductor-to-Metal transition in Two-Dimensional Crystals Using Ionomers." *Electronics Materials Conference* 6/27/2018, Santa Barbara, CA, Oral

HONORS SOCIETIES

- ***Tau Beta Pi, PA Lambda Chapter***, University of Pittsburgh, Pittsburgh, PA, Initiated 04/08/2018
- ***Omega Chi Epsilon, Iota Chapter***, University of Pittsburgh, Pittsburg PA, Initiated 03/26/2018

TECHNICAL EXPERIENCE

- COMSOL Multiphysics (Transport of Diluted Species, Solid Mechanics, and Electrostatics Modules)
- Basic use and upkeep of Mbraun Glovebox
- Optical Microscopy using Carl Zeiss AxioScope and Bruker Atomic Force Microscopes.
- Origin, GraphPad Prism 7 software.