

# Erich W. Kinder

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## EDUCATION

### UNIVERSITY OF NOTRE DAME

#### PH.D. IN ELECTRICAL ENGINEERING

Expected 2017 | Notre Dame, IN  
Project: Ion Doping of 2D Crystals

### UNIVERSITY OF NOTRE DAME

#### B.S IN ELECTRICAL ENGINEERING

2014 | Notre Dame, IN

### BOWLING GREEN STATE UNIV.

#### M.S. IN PHYSICS

May 2012 | Bowling Green, OH  
Thesis: Fabrication of All-Inorganic Optoelectronic Devices Using Matrix Encapsulation of Nanocrystal Arrays

### MICHIGAN TECH UNIVERSITY

#### B.S. IN APPLIED PHYSICS

May 2010 | Houghton, MI  
Conc. in Nanotechnology

## COURSEWORK

### GRAD LEVEL

IC Fabrication  
Semiconductor Device Physics  
Electromagnetism  
Electrochemistry  
Quantum Mechanics

### UNDERGRAD LEVEL

Quantum Computing  
Statistical Mechanics  
Entrepreneurship

## SKILLS

### PROGRAMMING

Java • C++ • Python • Matlab

### FABRICATION

Photo Lithography • Metalization  
Etching • Mask Design • Device Testing  
Material Deposition • 2D Material Processing

### OTHER

AFM • STM • Optical Microscopy  
Raman Spectroscopy • Fluorometry  
UV-Vis Spectroscopy

## RESEARCH

### FULLERTON GROUP | GRADUATE RESEARCHER

Jan 2013 – Present | Notre Dame, IN

Worked for Prof. Susan Fullerton to research doping and gating strategies utilizing ion conducting electrolytes. Projects include:

- Fabrication of a graphene FET directly on a solid polymer electrolyte
- Measurement of an electrochemically active, electrolyte gated MoS<sub>2</sub> FET
- Demonstration of room temperature static doping of graphene using an ion-locking polymer electrolyte

Responsibilities include:

- Owner of custom MBraun glovebox system, responsible for installation, training and maintenance
- Owner of Bruker Dimension Icon AFM, responsible for installation, training and maintenance
- Responsible for prep for lab safety audits
- Designed and implemented new chemical inventory system

### ZAMKOV LAB | GRADUATE RESEARCHER

Aug 2010 – May 2012 | Bowling Green, OH

Performed research for Prof. Mikhail Zamkov in the area of semiconductor quantum dots for optoelectronic device applications. Projects include:

- Synthesis of semiconducting quantum dots including core/shell and dot-in-a-rod formations
- Developed Semiconductor Matrix-Encapsulated Nanocrystal Array, patent filed for this technology
- Fabricated several novel optoelectronic devices using quantum dots

Responsibilities include:

- Owner of custom made spin-coating system in an inert gas glovebox, responsible for design, installation, training and maintenance
- Responsible for maintenance for various UV-Vis Spectroscopy systems

## SELECTED PUBLICATIONS

### PEER REVIEWED JOURNAL ARTICLES

**E. Kinder**, *et. al* "Fabrication of all-inorganic nanocrystal solids through matrix encapsulation of nanocrystal arrays," *J. Am. Chem. Soc.*, vol. 133, no. 50, pp. 20488–99, Dec. 2011.

H. Xu, S. Fathipour, **E. Kinder**, A. C. Seabaugh, and S. K. Fullerton-Shirey, "Reconfigurable Ion Gating of 2H-MoTe<sub>2</sub> Field-Effect Transistors Using Poly(ethylene oxide)-CsClO<sub>4</sub> Solid Polymer Electrolyte," *ACS Nano*, vol. 9, no. 5, pp. 4900–10, May 2015.

### SELECTED CONFERENCE PRESENTATIONS

**E. Kinder**, S. Fullerton, "PVA:LiClO<sub>4</sub>: a robust, high T<sub>g</sub> polymer electrolyte for adjustable ion gating of 2D materials," *APS March Meet. 2015*, 2015.

**E. Kinder**, *et. al* "Field-Controlled Ion Doping of Graphene," *225th Mtg. ECS*, vol. MA 2014–01, no. 33, p. 1265, Apr. 2014.