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
M.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

FABRICATION
Photolithography • Metalization
Etching • Mask Design • Device Testing
Material Deposition • 2D Material Processing

SOFTWARE
OriginPro • Matlab • Mathematica

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

RESEARCH

FULLERTON GROUP | Graduate Researcher
Jan 2013 – Present | University of Notre Dame
Performed research for Prof. Susan Fullerton in the areas of doping and gating strategies utilizing ion conducting electrolytes. Projects include:

- Fabrication of a graphene FET directly on a solid polymer electrolyte
- Measurement and analysis of an electochemically active, electrolyte-gated MoS_2 FET
- Demonstration of room temperature static doping of graphene using an ion-locking polymer electrolyte

Responsibilities include:

- Ownership of custom MBraun glovebox system with a Bruker Dimension Icon AFM, responsible for installation, training, maintenance and troubleshooting
- Informing collaborators and sponsors in the LEAST program of group research through quarterly reports and regular presentations
- Preparation for lab safety audits
- Designing and implementing of a new chemical inventory system

ZAMKOV LAB | Graduate Researcher
Aug 2010 – May 2012 | Bowling Green State University
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:

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

SELECTED PUBLICATIONS

SELECTED JOURNAL ARTICLES Peer Reviewed

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-$MoTe_2$ Field-Effect Transistors Using Poly(ethylene oxide)-$CsClO_4$ Solid Polymer Electrolyte.," *ACS Nano* , vol. 9, no. 5, pp. 4900–10, May 2015.

SELECTED CONFERENCE PRESENTATIONS As Presenter

E. Kinder , S. Fullerton, "PVA:LiClO4: a robust, high Tg polymer electrolyte for adjustable ion gating of 2D materials," *APS March Meet. 2015* , Mar. 2015.
E. Kinder , *et. al* "Field-Controlled Ion Doping of Graphene," *225th Mtg. ECS* , vol. MA 2014–01, no. 33, p. 1265, Apr. 2014.
E. Kinder , *et. al* "Matrix Encapsulation of Nanocrystals: A Method for Fabricating All-Inorganic Nanocrystal Solids," *QD2012* , Santa Fe, NM, May 2012.