# Kraig J. Andrews

666 West Hancock Street  $+1\ 248-798-9388$ Contact Information Detroit, MI 48201 kraig.andrews@wayne.edu kraigjandrews.com Research Two-dimensional materials, nanotechnology, transition metal dichalcogenides, field-effect Interests transistors, semiconductor physics, materials physics **EDUCATION** Wayne State University, Detroit, MI expected 2018 Ph.D., Physics • Thesis Topic: "Intrinsic Channel Properties, Scattering Mechanisms, and Quantum Transport Properties in Transition Metal Dichalcogenides" • Advisor: Zhixian Zhou, Ph.D 2016 Wayne State University, Detroit, MI M.S., Physics, Feb 2016 Michigan State University, East Lansing, MI 2014 B.S., Physics and Astrophysics (Double Major) Research Graduate Research Assistant 2015-Present EXPERIENCE Nano Fabrication and Electron Transport Laboratory, Department of Physics and Astronomy, Wayne State University Supervisor: Zhixian Zhou, Ph.D. Visiting Scientist May 2017-August 2017  $\pi$ - Electronics Research Group, International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS) (国立研究開発法人物質・材料研 究機構), Tsukuba, Ibaraki Prefecture, Japan Supervisor: Kazuhito Tsukagoshi, Ph.D. Undergraduate Researcher Jan 2014-May 2014 International Course on Computational Physics (ICCP) Michigan State University and Technische Universiteit Delft East Lansing, MI USA and Delft, Netherlands Supervisors: Phil Duxbury, Ph.D. and Jos Thijssen, Ph.D. Feb 2013-Dec 2013 Undergraduate Research Assistant Neutron Star Evolution and Developmental Limits, Department of Astronomy, Michigan State University Supervisor: Edward Brown, Ph.D May 2012-Jan 2013 Undergraduate Research Assistant

High Resolution Array Group (HIRA): SAMURAI-TPC Project

National Superconducting Cyclotron Laboratory,

Michigan State University

Supervisors: William Lynch, Ph.D. and Betty Tsang, Ph.D.

### Industry Experience

#### Summer Intern

Jun 2013–Aug 2013

Jenoptik Laser Technologies, Brighton, MI USA

Contributed in development of user interface for laser welding machine that allows user manipulation of robotic end-arm tooling. Using microcontroller program via interfaced electronic devices and several developed algorithms machine was able to analyze physical data and feedback.

#### Publications

 Chamlagain, B., Perera, M., Chuang, H.J., Bowman, A., Rijal, U., Andrews, K., Klesko, J., Winter, C., Zhou, Z. "Substrate dependence of Hall and Field-effect mobilities in few-layer MoS<sub>2</sub> field-effect transistors." *Manuscript in preperation*, 2016.

## CONFERENCE PUBLICATIONS

 Chamlagain, B., Perera, M., Chuang, H.J., Bowman, A., Rijal, U., Andrews, K., Klesko, J., Winter, C., Zhou, Z. "Substrate dependence of Hall and Field-effect mobilities in few-layer MoS<sub>2</sub> field-effect transistors." Bulletin of the American Physical Society, 2016.

# TEACHING EXPERIENCE

Teahcing Assistant, General Physics II, Wayne State University Winter 2017 Teaching Assistant, General Physics II, Wayne State University Autumn 2016 Teaching Assistant, General Physics I, Wayne State University Summer 2016 Teaching Assistant, General Physics I, Wayne State University Autumn 2015 Teaching Assistant, General Physics Lab I, Wayne State University Summer 2015 Laboratory Instructor, Conceptual Physics, Wayne State University Winter 2015 Laboratory Instructor, Descriptive Astronomy, Wayne State University Winter 2015 Laboratory Instructor, Descriptive Astronomy, Wayne State University Autumn 2014 Teaching Assistant, Introductory Physics II, Michigan State University Winter 2014 Laboratory Instructor, Planets and Telescopes, Michigan State University Winter 2013 Teaching Assistant, Introductory Physics I, Michigan State University Autumn 2013 Teaching Assistant, Introductory Physics II, Michigan State University Winter 2012

#### Relevant Skills

#### Nanofabrication:

Atomic Force Microscopy (AFM), Electron Beam Lithography, Photolithography, Computer-Aided Design (CAD), Scanning Electron Microscopy (SEM), clean room, chemical etching, metal deposition, and others

### Programming:

C, C++, Fortran, GNU make, HTML, CSS, Python, UNIX shell scripting, and Visual Basic

#### Data Analysis:

GNU octave, Kaleidagraph, LabView, MATLAB, Mathematica, Microsoft Excel

# Data Analysis:

Apple OS X, Linux OS, Microsoft Windows Family

#### Editing and Typesetting:

T<sub>E</sub>X, Microsoft Office, OpenOffice, LibreOffice, GIMP, InkScape

### Version Control:

Git, Mercurial, SVN

RELEVANT GRADUATE COURSEWORK Methods of Engineering Analysis II Advanced Quantum Mechanics I & II Survey of Condensed Matter Physics

Statistical Mechanics Electrodynamics Thermal Physics