KYLE W. HERSHEY

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Education:

Graduate Student, University of Minnesota, Minneapolis, MN
Expected Degree: Doctorate in Materials Science, May 2018

Bachelor of Arts, Coe College, Cedar Rapids, IA, May 2013 GPA: 3.927
Majors: Physics, Computer Science and Mathematics

Relevant Coursework:

-Crystal Structures and Symmetry
-Semiconductors
-Electromagnetism
-Quantum Mechanics
-Material Physics and Chemistry
-Mechanics
-Thermodynamics
-Linear Algebra
-Differential Equations
-Graph Theory
-Set Theory and Topology
-Discrete Mathematics

Honors:

- Eagle Scout
- Dean's List, Coe College
- Sigma Pi Sigma Physics Honors Society

Research Experience:

Research Assistant, University of Minnesota Chemical Engineering and Materials Science Department, Minneapolis, MN
June 2013-August 2013
Optical Field Effects on Organic Light Emitting Diode External Quantum Efficiency

- Mentor: Nick Erickson, Graduate Student, University of Minnesota
- PI: Russel Holmes, University of Minnesota – Material Science
- Depositing thin films with sublimation chamber
- Optical Field simulation with Matlab
- Equipment Used: Angstrom Engineering Deposition Chamber, Ocean Optics Spectrum Analyzer, variable voltage power supply

Summer Research, Northwestern University Material Science Department, Evanston, IL
June 2012-August 2012
Field Enhancement Due to Plasmonic Nanostructures

- Mentor: Montacer Dridi, Graduate student, Northwestern University Chemistry
- PI: Dr. George Schatz, Northwestern University Chemistry
- Computational simulation of Electromagnetic Field enhancement near the surface of Gold cylindrical dimers
- Finite-Difference Time Domain method simulation in a Yee latice
- Constant Transverse Wavenumber Spectral FDTD with Periodic Boundary Conditions
- Cluster computing on Northwestern's High Performance Computing System - Quest
- Software used: Fedora, Matlab, Emacs, Moab Cluster Suite, SSH, SCP

Rockwell Collins Internship, Rockwell Collins, Inc. Advanced Technology Center, Microelectronics Packaging Unit, Cedar Rapids, IA
June 2011-August 2011
Microelectronics die attach process development

- Mentor: Guy Smith, Sr. Mechanical Engineer, Rockwell Collins, Inc.
- Experience with: class 10000 clean room, chip bonder, wire bonding, stub bumping, plating baths, TLP bonding, AuSn Eutectic bonding, solder bumping, BGA attachment, cross sectional die analysis
- Wrote working papers on No Clean microelectronics die attachment and Transient Liquid Phase bonding

Summer Research, Coe College Physics Department, Cedar Rapids, IA
June 2010-August 2010
Effects of Pipe Wall Vibrations on the Sound of a Free-Reed Wind Instrument

- PI: Dr. James Cottingham, Physics Department, Coe College
- Examined the effects of the vibrations in the pipe walls of free-reed wind instruments.
- Material measurements of Density and Young's Modulus of the bamboo pipes
- Equipment used: Fourier transform spectrum analyzer, Frequency generator, Energy dispersive x-ray spectroscopy with Scanning electron microscope
- Theoretical Modeling with Matlab and Mathematica
- Presented results of our material property measurements of bamboo at the Acoustics Society of America's National Meeting in Seattle, May 2011

May Term Research, Coe College Physics Department, Cedar Rapids, IA, May 2010
Glass Research on Borate Glasses

- PI: Dr. Steve Feller, Physics Department, Coe College
- Worked with other students to research the structures of borate glasses
- Equipment used: Pycnometer, Differential scanning calorimeter, Scanning electron microscope, Laser levitator, Raman spectrometer, X-ray defractometer

Conferences and Presentations:

- Sigma Pi Sigma Quadrennial Physics Congress 2012, poster presentation, Orlando, FL
- 161st Meeting of the Acoustical Society of America, Presenter, Seattle, WA, May 2011

Computer skills:

Microsoft Office Suite	Mathematica
Matlab	Autodesk Inventor
AutoCAD	Linux (5 years daily use)
Origin	LaTeX

Programming Languages:

C/C++	C#
Python	Matlab

Leadership and Activities:

- Society of Physics Students Chapter president '12-'13
- Coe Physics Club Treasurer '11-'12 Vice President '12-'13
- Coe College Math Club
- Math Help Room Supervisor, Coe College 2012
- Tutor for the Academic Achievement Program (Math, Physics, Computer Science)