

Josh Orndorff

Curriculum Vitae

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Education

- 2011–2013 **Master of Science in Physics**, *The University of Toledo*, Toledo, OH.
- GPA: 3.6
 - Attended graduate-level physics courses and seminars.
 - Attended electrical engineering courses.
 - Wrote and defended a thesis in theoretical optics and photonics.
 - Assisted undergraduate students at department helpdesk.
- 2006–2010 **Bachelor of Science in Physics**, *Calvin College*, Grand Rapids, MI.
- GPA: 3.3
 - Physics Major and Mathematics Minor.
 - Graduated in three and a half years. Terra Technical College, Fremont, OH.
 - Assisted fellow students at math department helpdesk.
- 2002–2006 **High School Diploma**, *Huron High School*, Huron, OH.
- GPA: 3.0
 - Scored 5 on AP Physics B and Calculus AB tests.
 - Took classes toward an information systems degree at Terra Technical College, Fremont, OH.

Masters Thesis

Title *Amplified Total Internal Reflection at the Surface of Gain Medium*

Advisor Dr. Robert T. Deck

Abstract For decades there has been debate about whether amplified TIR from a medium exhibiting optical gain is possible, and desire for a theory to explain it. Plane wave reflectivity is found to exhibit a discontinuous jump from below unity to above as the incidence angle passes through the critical angle, confirming the existence of amplified TIR. Fourier analysis is used to show that finite beams also exhibit amplified TIR, but do not experience the surprising discontinuous jump in reflectivity at the critical angle.

Work Experience

2014 – 2015 **Teacher and Research Advisor**, *Princeton International School of Mathematics and Science*, Princeton, NJ.

I was hired as part of the first-year faculty in this startup school to supervise the robotics lab and advise students' robotics related research as well as teach various physics courses. The experience of working at a startup school provided invaluable insight into administration, accreditation, standard evaluation, and curriculum design.

- Designed Computer Science curriculum and taught Introduction to Programming.
- Setup electronics and robotics lab and taught Electrical Engineering.
- Taught various levels of physics.
- Advised students' original research in computer science and robotics.
- Helped develop and implement standards for physics and computer science departments as part of accreditation process.
- Advised robotics club and student rock band (The PRISMers)

Summers **Instructor**, *Johns Hopkins University Center for Talented Youth*, Carlisle, PA.

- 2009 – 2014
- Designed and instructed Electrical Engineering course.
 - Managed science supply orders, chose text books, and wrote course curriculum.
 - Wrote individualized student evaluations for each student.

2011 – 2013 **Lab Instructor**, *University of Toledo*, Toledo, OH.

- Taught undergraduate-level physics courses.
- Taught undergraduate-level engineering courses.
- Managed physics department help desk.

2010 – 2011 **Math Teacher**, *ACI Institute*, Alhambra, CA.

- Taught pre-algebra for grades five and six.
- Taught geometry for grades nine and ten.
- Prepared all assignments and exams for both courses.

Spring 2010 **English (ESL) teacher**, *Guangzhou Worlda Cultural and Educational Services LTD*, Guangzhou, GD, PRC.

- Taught English classes to Chinese primary school students.
- Prepared several lessons each week for over 1100 students.

Summer **Optical Research Associate**, *Sound Off Signal*, Hudsonville, MI.

- 2008
- Studied existing light distribution devices and patents.
 - Developed internal-reflection light pipes for use in law enforcement and rescue vehicles.
 - Developed computer models of optical systems using 3D CAD and ray-tracing software.

Summer **Information Technology Intern**, *Bettcher Industries*, Birmingham, OH.

- 2007
- Setup hardware and software on new personal computers.
 - Oversaw, tested, and deployed enterprise management software.
 - General troubleshooting and help desk responsibilities.
 - Assisted in installation of IP phone system.

Computer Skills

Coding Python, C, AVR C, Java

Web PHP, HTML5, CSS3, Javascript, JQuery, Drupal

General Linux, LibreOffice, L^AT_EX, 3D CAD



Interests

- Running
- Guitar
- Motorcycles
- Biking
- Rock Bands
- Aviation