

# James Philip Hendrie

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## EDUCATION

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- University of New Mexico**, Albuquerque, NM May 2018 (expected)  
*Ph.D. in Optical Science and Engineering*
- University of New Mexico**, Albuquerque, NM May 2015  
*Masters. in Optical Science and Engineering*
- Indiana University**, Bloomington, IN May 2012  
*B.S. in Physics*

## ACADEMIC WORK

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- University of New Mexico**, Albuquerque, NM Summer 2013 - Present Day  
*Design and Construction of Fiber and Free Space Mode-Locked Lasers*
- Designed and built multiple fiber based oscillators and a bi-directionally pumped fiber amplifier
  - Created a linear Ti:Sapph laser for the purpose of refractive index measurement
  - Designed and assembled Ti:Sapph bi-directional ring lasers utilizing organic dye jets as saturable absorbers for gyroscopic and magnetic field measurements using Intra-cavity Phase Interferometry (IPI) techniques
- Indiana University**, Bloomington, IN March 2011 - June 2012  
*Created an Optical Coherence Tomography (OCT) setup to test the spectrographic detectors used by the more advanced systems for generating three dimensional images of a patient's retina*
- Designed and constructed my own OCT system using motorized stages and fiber optics
  - Performed data analysis in ImageJ to assist in the analysis of three dimensional images of human retinas
- Indiana University**, Bloomington, IN Summer 2010  
*Prepared software and constructed triangular solenoids for experiments in neutron scattering*
- Followed designs from the researchers in the lab to assemble and wind triangular solenoids
  - Learned Python to help write code for controlling a magnetic probe to assess the field generated by triangular solenoids
  - Learned Mathematica to analyze the data of the magnetic probe previously listed
- Indiana University**, Bloomington, IN Spring 2010  
*Worked on ALPHA project, a project that was located on the IU campus overseen by Crane Naval Base*
- Designed an organizational system to keep track of accelerator parts
  - Worked in a clean room cleaning and packaging accelerator parts so the most effective vacuum level could be achieved

## WORK EXPERIENCE

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- University of New Mexico**, Albuquerque, NM August 2012 - December 2013  
*Teaching Assistant*
- Taught Astronomy 101 lab to mostly non-science students
  - Updated the curriculum and layout of many of the outdated labs
- Indiana University**, Bloomington, IN October 2008 - May 2012  
*Theatrical Electrician*
- Setup and strike of stage lighting and technical equipment for university plays and events

## LEADERSHIP EXPERIENCE

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University of New Mexico, Albuquerque, NM

September 2016 - Present Day

*Communications Officer of the Physics and Astronomy Graduate Student Association*

- Manage communications between all the graduate students involved in the association, which entails reaching students working at various locations around campus as well as at the national laboratories around the state
- Manage the association website and Facebook page

University of New Mexico, Albuquerque, NM

November 2015 - March 2016

*Vice Chair of the Legislative Steering Committee of the Graduate and Professional Student Association*

- Helped to organize meetings of the Legislative Steering Committee
- Took minutes of all meetings
- Edited documents before they reached the council floor
- Assisted in the change of leadership of the committee

University of New Mexico, Albuquerque, NM

September 2015 - March 2016

*Graduate and Professional Student Association Council Member*

- Representative from the Physics and Astronomy Department
- Voted on council spending and voiced opinions and concerns regarding graduate student life on campus
- Traveled to Santa Fe to the New Mexico State Government to lobby for funds for a new building for the Physics and Astronomy Department
- Received recognition from Who's Who Among Students in American Universities and Colleges
- Received the executive award for Innovative Leadership

University of New Mexico, Albuquerque, NM

September 2013 - September 2015

*President of the Physics and Astronomy Graduate Student Association*

- Planned and Organized meetings and events for the graduated students of the Physics and Astronomy Department
- Acted as a liaison to the faculty and staff of the department on behalf of the graduate students on matters regarding working conditions, graduate retention rates and construction of a new department building on main campus
- Worked with my fellow officers to update the constitution of our organization

Boy Scouts of America, Seattle, WA

September 1996 - Spring 2008

*Acted as an active member of the organization*

- Served as Assistant Patrol Leader and Patrol Leader for my Patrol in Troop 237
- Served as Troop Secretary
- Made Eagle Scout on February 5<sup>th</sup>, 2008
- Was inducted into the Order of the Arrow, the BSA honor society
- Received Brotherhood Honor within the Order of the Arrow
- Served as Chapter Vice Chief of Communications

## TECHNICAL SKILLS

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- **Languages:** Python, Matlab, LabView, LaTeX, Mathematica
- **Laboratory:** Laser Design, Laser Construction and Alignment, Optical Fiber Splicing and Handling, Experimental Design and Setup
- **Miscellaneous:** Teaching, Technical Writing, Excel, Word, Power Point

## PUBLICATION LIST

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[1] James Hendrie, Matthias Lenzner, Ladan Arissian, and Jean-Claude Diels. Large changes in gyro response of a mode-locked laser by creation of slow-light/fast-light with an intracavity Fabry-Perot. In International Conference on Ultrafast Phenomena, page Utu4A.42. Optical Society of America, 2016.

[2] James Hendrie, Matthias Lenzner, Hanieh Afkhamiardakani, Jean-Claude Diels, and Ladan Arissian. Impact of resonant dispersion on the sensitivity of intracavity phase interferometry and laser gyros. *Optics Express*, 24:30402-30410, 2016.

[3] Koji Masuda, James Hendrie, Jean-Claude Diels, and Ladan Arissian. Envelope, group and phase velocities in a nested frequency comb. *Journal of Physics B*, page in print, 2016.

[4] Chengyong Feng, James Hendrie, Jean-Claude Diels, and Ladan Arissian. Filaments for raman spectroscopy. In CLEO: 2015, page JTh2A.89. Optical Society of America, 2015.

[5] J. Hendrie, J.-C. Diels, and L. Arissian. Nested Fabry-Perot in mode-locked lasers to monitor minute changes of index. In CLEO, 2015, page SF2L.7, San Jose, CA, 2015.

[6] K. Masuda, E.I. Vaughan, L. Arissian, J.P. Hendrie, J. Cole, J.-C. Diels, and A. Hecht. Novel techniques for high precision refractive index measurements, and application to assessing neutron damage and dose in crystals. Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 784:198–201, 2015.

[7] P. Stonaha, J. Hendrie, W. T. Lee, and Roger Pynn. Neutron spin evolution through broadband current sheet spin flippers. Review of Scientific Instruments, 84:105-113, 2013.