

**Fehmi S. Yasin**  
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Scanning Transmission Electron Microscopy Group  
Center for Nanophase Materials Sciences  
Oak Ridge National Laboratory  
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## PROFESSIONAL PREPARATION

2019 - 2024	<b>Postdoctoral Institution</b> RIKEN, Center for Emergent Matter Science (CEMS) Advisor: Dr. Xiuzhen Yu	Wako, Saitama, JP
2013 - 2019	<b>Graduate Institution</b> University of Oregon Advisor: Prof. Benjamin J. McMorran	<b>Degree</b> Ph.D. in Physics <b>Defense March 21<sup>st</sup>, 2019</b> Eugene, OR, USA
2009 - 2013	<b>Undergraduate Institution</b> Westminster College	<b>Degree</b> B.S. in Physics <b>Honors Program</b> Salt Lake City, UT, USA

## APPOINTMENTS

02/2024 – present	<b>R&amp;D Associate</b> Center for Nanophase Materials Sciences, ORNL Field of Specialization: Experimental Condensed Matter and Electron Optical Physics Research Interests: in-situ electron transport in magnetic metals, electron physics, DPC STEM, thermal-driven magnetic skyrmion dynamics, electron microscopy, nano-magnetic imaging, STEM Holography. <ul style="list-style-type: none"><li>• Development of in-situ transport and biasing techniques in (S)TEM</li></ul>	Oak Ridge, Tennessee, USA
04/2022 – 01/2024	<b>Special Postdoctoral Researcher</b> RIKEN Center for Emergent Matter Science Field of Specialization: Experimental Condensed Matter and Electron Optical Physics Research Interests: electron physics, DPC STEM, thermal-driven magnetic skyrmion dynamics, electron microscopy, nano-magnetic imaging, STEM Holography. <ul style="list-style-type: none"><li>• Development of 4D-STEM and differential phase contrast (DPC) scanning transmission electron microscopy (STEM) techniques to study the magnetic structure of novel materials and their emergent electromagnetic inductance.</li><li>• Microfabrication of various TEM-ready electro-thermal devices using focused ion beam (FIB).</li><li>• Employing Lorentz TEM magnetic imaging to study thermal current driven dynamics and transformation of topological spin textures including skyrmions and antiskyrmions.</li><li>• Employing off-axis electron holography-tomography to study the 3D magnetic structure of topological spin textures.</li></ul>	Wako, Saitama, JAPAN
07/2019 – 04/2022	<b>Postdoctoral Researcher</b> RIKEN Center for Emergent Matter Science Field of Specialization: Experimental Condensed Matter and Electron Optical Physics Research Interests: electron physics, DPC STEM, matter wave interferometry, electron microscopy, nano-magnetic imaging, STEM Holography. <ul style="list-style-type: none"><li>• Nanofabricate specimens using focused ion beam and/or precision ion polishing technologies for view within an electron microscope. Employ state of the art magnetic imaging techniques including Lorentz transmission electron microscopy and differential phase contrast scanning transmission electron microscopy on novel materials to discover their magnetic properties and emergent spin textures. Fabricate novel electronic and thermal magnetic devices to stimulate observe spin texture dynamics.</li></ul>	Wako, Saitama, JAPAN
11/2018 – 06/2019	<b>Graduate Research Assistant</b> University of Oregon Field of Specialization: Experimental Condensed Matter and Electron Optical Physics Research Interests: electron physics, STEM ptychography, matter wave interferometry, electron microscopy, nano-magnetic imaging, STEM Holography.	Eugene, Oregon, USA

- Employing STEMH as a high-resolution phase-contrast technique at both the National Center for Electron Microscopy in Berkeley, CA and at the University of Oregon.
- 11/2017 – 11/2018 **NSF Graduate Research Opportunities Worldwide Fellow**  
Center for Exploratory Research, Hitachi, Ltd. Hatoyama, Saitama, JAPAN
- Developed a tunable path separated electron interferometer within a commercial Hitachi TEM with applications for large-geometry interferometry experimental setups and high phase sensitivity. Built STEM mode software from scratch within the commercial TEM using C++ as a Digital Micrograph plugin. Nano-fabricated a custom rectangular two-slit electron biprism ~200 nm wide with slits ~200 nm wide as well as using FIB technology. Used expertise in STEM, TEM, electron holography, FIB, software development in python and C++, sputter-coating and evap-deposition.
- 06/2015 – 06/2018 **NSF Graduate Research Fellow**  
University of Oregon Eugene, Oregon, USA
- Developed a path separated electron interferometer within a commercial TEM with applications in high resolution images of bio-molecular materials (phase objects), nano-magnetic domains and vector potential fields.
- 2014 – 2015 **Graduate Research Assistant**  
University of Oregon Eugene, Oregon, USA
- Catalogued nano-particles and materials using transmission electron microscope
- 2012 **Undergraduate Research Assistant (REU Program)**  
CU Boulder Boulder, Colorado, USA
- Conducted research in Dr. Markus Raschke's laboratory concerning nano-optics and in particular a technique called scattering scanning near-field optical microscopy (s-SNOM).
- 2011 **Undergraduate Research Assistant (REU Program)**  
University of Oregon Eugene, Oregon, USA
- Conducted research in Dr. David Cohen's laboratory concerning semiconductor physics and specifically a technique called Deep Level Transient Spectroscopy (DLTS), resulting in a publication.

## AWARDS

- 2024 CEMS Award, RIKEN, Japan  
 2024 Alvin M. Weinberg Distinguished Staff Fellow, ORNL, United States  
 2024 RIKEN Ohbu Award, RIKEN, Japan  
 2023 Best Oral Presentation, IEEE Around-the-Clock Around-the-Globe Magnetism Conference, virtual  
 2023 Best Oral Presentation, International Microscopy Congress 20, Busan, Korea  
 2022 Special Postdoctoral Research Fellow, RIKEN, Japan  
 2021 Incentive Research Project Grant  
 2018 Microscopy Society of America Travel Scholarship Award  
 2018 Special "Opps" Travel and Research Award  
 2017 – 2018 National Science Foundation Graduate Research Opportunities Worldwide Fellowship  
 2016 Microscopy and Microanalysis Meeting Student Scholar Award  
 2015 Weiser Senior Teaching Assistant Award  
 2015 – 2018 National Science Foundation Graduate Research Fellowship  
 Apr.-June 2015 Science Literacy Program Fellowship  
 Jan.-Mar. 2015 Science Literacy Program Fellowship  
 2009 National Hispanic Honors Scholar

## PUBLICATIONS

### Peer-Review Journal Publications

1. D. V. Christensen, U. Staub, T. R. Devidas, B. Kalisky, K. C. Nowack, J.L. Webb, U.L. Andersen, A. Huck, D. A. Broadway, K. Wagner, P. Maletinsky, T. van der Sar, C. R. Du, A. Yacoby, D. Collomb,

- S. Bending, A. Oral, H. J. Hug, A.-O. Mandru, V. Neu, H. W. Schumacher, S. Sievers, H. Saito, A.A. Khajetoorians, N. Hauptmann, S. Baumann, A. Eichler, C. L. Degen, J. McCord, M. Vogel, M. Fiebig, P. Fischer, A. Hierro-Rodriguez, S. Finizio, S. S. Dhesi, C. Donnelly, Felix Büttner, O. Kfir, W. Hu, S. Zayko, S. Eisebitt, B. Pfau, R. Frömter, M. Kläui, **F. S. Yasin**, B. J. McMorrán, S. Seki, X. Yu, A. Lubk, D. Wolf, N. Pryds, D. Makarov, M. Poggio, “2024 Roadmap on Magnetic Microscopy Techniques and Their Applications in Materials Science,” *JPhys. Mater.*, Accepted (2024).
2. **Fehmi Sami Yasin**, Jan Masell, Yoshio Takahashi, Tetsuya Akashi, Norio Baba, Kosuke Karube, Daisuke Shindo, Takahisa Arima, Yasujiro Taguchi, Yoshinori Tokura, Toshiaki Tanigaki, Xiuzhen Yu, “Bloch Point Quadrupole Constituting Hybrid Topological Strings Revealed with Electron Holographic Vector Field Tomography,” *Adv. Mater.*, 2311737 (2024).
  3. **Fehmi Sami Yasin**, Jan Masell, Kosuke Karube, Daisuke Shindo, Yasujiro Taguchi, Yoshinori Tokura, Xiuzhen Yu, “Heat current-driven topological spin texture transformations and helical q-vector switching,” *Nat. Comm.* **14**, 1, 7094, (2023).
  4. Lukas Powalla, Max T. Birch, Kai Litzius, Sebastian Wintz, **Fehmi Sami Yasin**, Luke A. Turnbull, Frank Schulz, Daniel A. Mayoh, Geetha Balakrishnan, Markus Weigand, Xiuzhen Yu, Klaus Kern, Gisela Schütz, Marko Burghard, “Seeding and Emergence of Composite Skyrmions in a van der Waals Magnet,” *Adv. Mater.* **35**, 12, 2208930, (2023).
  5. Xiuzhen Yu, Konstantin V Iakoubovskii, **Fehmi Sami Yasin**, Licong Peng, Kiyomi Nakajima, Sebastian Schneider, Kosuke Karube, Takahisa Arima, Yasujiro Taguchi, Yoshinori Tokura, “Real-space observations of three-dimensional antiskyrmions and skyrmion strings,” *Nano Lett.* **22**, 23, 9358-64, (2022).
  6. **Fehmi Sami Yasin**, Jan Masell, Kosuke Karube, Akiko Kikkawa, Yasujiro Taguchi, Yoshinori Tokura, Xiuzhen Yu, “Real-space determination of the isolated magnetic skyrmion deformation under electric current flow,” *Proceedings of the National Academy of Sciences*, 119 (41), e2200958119, (2022).
  7. Xiuzhen Yu, Fumitaka Kagawa, Shinichiro Seki, Masashi Kubota, Jan Masell, **Fehmi Sami Yasin**, Kiyomi Nakajima, Masao Nakamura, Masashi Kawasaki, Naoto Nagaosa, Yoshinori Tokura, “Real-space observations of 60-nm skyrmion dynamics in an insulating magnet under low heat flow,” *Nat. Comm.* **12**, 5079, (2021).
  8. Licong Peng\*, **Fehmi Sami Yasin\***, Tae-Eon Park, Sung J. Kim, Xichao Zhang, Takuro Nagai, Koji Kimoto, Seonghoon Woo, Xiuzhen Yu, “Tunable Néel-Bloch magnetic twists in Fe<sub>3</sub>GeTe<sub>2</sub> with van der Waals structure,” *Adv. Funct. Mat.* **31**, 37, 2103583, (2021).
  9. Tae-Eon Park, Licong Peng, Jinghua Liang, Ali Hallal, **Fehmi Sami Yasin**, Xichao Zhang, Kyung Mee Song, Sung Jong Kim, Kwangsu Kim, Markus Weigand, Gisela Schütz, Simone Finizio, Jörg Raabe, Karin Garcia, Jing Xia, Yan Zhou, Motohiko Ezawa, Xiaoxi Liu, Joonyeon Chang, Hyun Cheol Koo, Young Duck Kim, Mairbek Chshiev, Albert Fert, Hongxin Yang, Xiuzhen Yu, Seonghoon Woo, “Néel-type skyrmions and their current-induced motion in van der Waals ferromagnet-based heterostructures,” *Phys. Rev. B* **103**, 10, 104410, (2021).
  10. Nitish Mathur\*, **Fehmi Sami Yasin\***, Matthew J Stolt, Takuro Nagai, Koji Kimoto, Haifeng Du, Mingliang Tian, Yoshinori Tokura, Xiuzhen Yu, Song Jin, “In-Plane Magnetic Field-Driven Creation and Annihilation of Magnetic Skyrmion Strings in Nanostructures,” *Adv. Funct. Mat.* **31**, 13, 2008521, (2021).
  11. Yukako Fujishiro, Naoya Kanazawa, Ryosuke Kurihara, Hiroaki Ishizuka, Tomohiro Hori, **Fehmi Sami Yasin**, Xiuzhen Yu, Atsushi Tsukazaki, Masakazu Ichikawa, Masashi Kawasaki, Naoto Nagaosa, Masashi Tokunaga, Yoshinori Tokura, “Giant anomalous Hall effect from spin-chirality scattering in a chiral magnet,” *Nat. Comm.* **12**, 1, 1-6 (2021).
  12. **Fehmi Sami Yasin**, Licong Peng, Rina Takagi, Naoya Kanazawa, Shinichiro Seki, Yoshinori Tokura, Xiuzhen Yu, “Bloch Lines Constituting Antiskyrmions Captured via Differential Phase Contrast,” *Adv. Mat.* **32**, 46, 2004206, (2020).
  13. Xiuzhen Yu, Jan Masell, **Fehmi Sami Yasin**, Kosuke Karube, Naoya Kanazawa, Kiyomi Nakajima, Takuro Nagai, Koji Kimoto, Wataru Koshibae, Yasujiro Taguchi, Naoto Nagaosa, Yoshinori Tokura,

- “Real-space observation of topological defects in extended skyrmion-strings,” *Nano Lett.* **20**, 10, 7313-20, (2020).
14. Tyler R Harvey, **Fehmi Sami Yasin**, Jordan J Chess, Jordan S Pierce, Roberto MS Dos Reis, Vasfi Burak Özdöl, Peter Ercius, Jim Ciston, Wenchun Feng, Nicholas A Kotov, Benjamin J McMorran, Colin Ophus, “Interpretable and Efficient Interferometric Contrast in Scanning Transmission Electron Microscopy with a Diffraction-Grating Beam Splitter,” *Phys. Rev. Appl.* **10**, 6, 061001, (2018).
  15. **Fehmi Sami Yasin**, Ken Harada, Daisuke Shindo, Hiroyuki Shinada, Benjamin J McMorran, Toshiaki Tanigaki, “A tunable path separated electron interferometer with an amplitude-dividing grating beamsplitter,” *Appl. Phys. Lett.* **113**, 2343102, (2018).
  16. **Fehmi Sami Yasin**, Tyler R Harvey, Jordan J Chess, Jordan S Pierce, Colin Ophus, Peter Ercius, Benjamin J McMorran, “Probing Light Atoms at Subnanometer Resolution: Realization of Scanning Transmission Electron Microscope Holography,” *Nano Lett.* **18**, 11, 7118-7123, (2018).
  17. **Fehmi Sami Yasin**, Tyler R Harvey, Jordan J Chess, Jordan S Pierce, Benjamin J McMorran, “Path-separated electron interferometry in a scanning transmission electron microscope,” *J. Phys. D: Appl. Phys.* **51**, 205104, (2018).
  18. Joshua Ziegler, Andrew Blaikie, Aidin Fathalizadeh, David Miller, **Fehmi Sami Yasin**, Kerisha Williams, Jordan Mohrhardt, Benjamin J McMorran, Alex Zettl, Benjamin Alemán, “Single-Photon Emitters in Boron Nitride Nanococoons,” *Nano Lett.* **18**, 2683–2688, (2018).

\* Equally contributing

### **Published Refereed Conference Papers**

1. **F. S. Yasin**, J. Masell, K. Karube, A. Kikkawa, Y. Taguchi, Y. Tokura, X. Z. Yu, “Real Space Demonstration of Electric Current-Induced Isolated Skyrmion Deformation,” *Microsc. Microanal.* **28**, S1, 1724-5 (2022).
2. **F. S. Yasin**, K. Karube, A. Kikkawa, Y. Taguchi, Y. Tokura, X. Z. Yu, “Current-driven Dynamics of Magnetic Skyrmion Bunches,” *Microsc. Microanal.* **27**, S1, 382-3 (2021).
3. **F. S. Yasin**, L. C. Peng, T. E. Park, N. Kanazawa, S. Woo, Y. Tokura, X. Z. Yu, “Quantitative Measurement of Topological Spin Textures via Differential Phase Contrast,” *Microsc. Microanal.* **26**, S2, 614-6 (2020).
4. A. Greenberg, B. J. McMorran, C. Johnson, **F. S. Yasin**, “Magnetic Phase Imaging Using Interferometric STEM,” *Microsc. Microanal.* **26**, S2, 2480-2 (2020).
5. C. Ophus, T. R. Harvey, **F. S. Yasin**, H. G. Brown, P. M. Pelz, B. H Savitzky, J. Ciston, B. J. McMorran, “Advanced Phase Reconstruction Methods Enabled by Four-Dimensional Scanning Transmission Electron Microscopy,” *Microsc. Microanal.* **25**, S2, 10-11 (2019).
6. G. Carrillo, R. M. Haynes, **F. S. Yasin**, B. J. McMorran, “Transforming a Thermionic Transmission Electron Microscope into an Electron Interferometer,” *Microsc. Microanal.* **25**, S2, 94-95 (2019).
7. A. Greenberg, **F. S. Yasin**, C. Johnson, B. J. McMorran, “Lorentz Implementation of STEM Holography,” *Microsc. Microanal.* **25**, S2, 96-97 (2019).
8. A. Turner, **F. S. Yasin**, C. Johnson, B. J. McMorran, “Single Electron Interferometry: A Step Toward Quantum Electron Microscopy,” *Microsc. Microanal.* **25**, S2, 1712-13 (2019).
9. B. J. McMorran, T. R. Harvey, C. Ophus, J. Pierce, **F. S. Yasin**, “Demonstration of STEM Holography Using Diffraction Gratings,” *Microsc. Microanal.* **24**, S1, 200-201 (2018)
10. T. R. Harvey, V. Grillo, F. Venturi, JS Pierce, **F. S. Yasin**, J. J. Chess, S. Frabboni, E. Karimi, B. J. McMorran, “Holographically Probing Longitudinal Magnetic Fields with Electron Vortex Beams,” *Microsc. Microanal.* **24**, S1, 938-939 (2018)
11. **F. S. Yasin**, T. R. Harvey, J. J. Chess, J. S. Pierce, B. J. McMorran, “Development of STEM-Holography,” *Microsc. Microanal.* **22**, 506 (2016)
12. C.W. Warren, D.W. Miller, **F. S. Yasin**, J.T. Heath, “Characterization of bulk defect response in Cu(In, Ga)Se<sub>2</sub> thin-film solar cell using DLTS,” *Photovoltaic Specialists Conference (PVSC), 2013 IEEE 39<sup>th</sup>*, pp.0170,0173, 16-21 June 2013

### **SELECTED PRESENTATIONS**

## Invited Talks

1. 11<sup>th</sup> Center for Emergent Matter Science Award Lecture, RIKEN, Saitama, Japan, April 24, 2024  
*“Direct observations of the dynamics of helical spin textures and (anti)skyrmions via electric/heat current flows.”*
2. Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA, August 8, 2022  
*“Using electrons to see nanomagnetic spin textures and their response to external fields, heat, and currents.”*
3. Materials Science Institute (MSI) at the University of Oregon, Eugene, Oregon, USA, July 19, 2022  
*“Using electrons to see nanomagnetic spin textures and their response to external fields, heat, and currents.”*

## Contributed Talks

4. **Best Oral Presentation:** IEEE Around-the-Clock Around-the-Globe Magnetics Conference (virtual) September 27<sup>th</sup>, 2023. *“Discovery of a Bloch point quadrupole via holographic vector field electron tomography.”*
5. **Best Oral Presentation:** The 20<sup>th</sup> International Microscopy Congress (IMC20), BEXCO, Busan, Korea, September 14<sup>th</sup>, 2023  
*“Discovery of a Bloch point quadrupole via holographic vector field electron tomography.”*
6. Japanese Society of Microscopy (JSM) Annual Meeting, Matsue, Japan, June 23, 2023  
*“Heat current-driven topological spin texture transformations and helical q-vector switching.”*
7. IEEE Intermag 2023, Sendai, Japan, May 15, 2023  
*“Heat current-driven topological spin texture transformations and helical q-vector switching.”*
8. Microscopy and Microanalysis annual meeting, Portland, Oregon, USA, August 2, 2022  
*“Real space demonstration of electric current-induced isolated skyrmion deformation.”*
9. MMM/Intermag 2022 virtual meeting, USA, January 10, 2022  
*“Quantification of isolated magnetic skyrmion deformation under electric current flow.”*
10. Microscopy and Microanalysis annual meeting, Virtual, USA, July 28, 2021  
*“Electric current-driven deformation and torque of skyrmions and their bunches at room temperature.”*
11. Japanese Society of Microscopy (JSM) Annual Meeting, Tsukuba, JP, June 16, 2021  
*“Identification of Topological Magnetic Spin Textures via Differential Phase Contrast.”*
12. Japanese Society of Microscopy (JSM) Annual Meeting, Tsukuba, JP, June 14, 2021  
*“Driving Magnetic Skyrmion Bunches with a 10  $\mu$ s wide Electric Pulse Current.”*
13. Microscopy and Microanalysis annual meeting, Virtual, USA, August 4, 2020  
*“Quantitative Measurement of Topological Spin Textures via Differential Phase Contrast.”*
14. University of Oregon Thesis Public Oral Defense, Eugene, OR, USA, March 21, 2019  
*“Scanning Transmission Electron Microscope Holography and a Tunable Path-separated Electron Interferometer with an Amplitude-dividing Beamsplitter.”*
15. International Microscopy Congress, Sydney, AU, Sept. 09, 2018  
*“Sub-nanometer Resolution Scanning Transmission Electron Microscope Holography (STEMH) and a Tunable Path-separated Electron Interferometer with an Amplitude-dividing Beamsplitter.”*
16. Japanese Society of Microscopy (JSM) Annual Meeting, Kurume, JP, May 31, 2018  
*“Probing the Invisible: Development of STEM Holography with an Amplitude-division Beamsplitter”*
17. JSM Ultra High Resolution Microscopy Workshop, Miura, JP, Feb. 24, 2018  
*“Probing the Invisible: Development of STEM Holography with an Amplitude-division Beamsplitter”*
18. SACNAS, The National Diversity in STEM Conference, Salt Lake City, UT, October 20, 2017  
*“Probing the Invisible: Development of a Path Separated Electron Interferometer”*
19. Oregon Center for Optical, Molecular and Quantum Science Symposium, Eugene, OR, USA, Sept. 11, 2017  
*“Probing the Invisible: Development of a Path Separated Electron Interferometer”*
20. Molecular Foundry User Meeting, Berkeley, CA, USA, August 17, 2017  
*“Development of STEM Holography with a Grating Beamsplitter in a Scanning Transmission Electron Microscope”*

## Posters

21. 29<sup>th</sup> International Conference on Low Temperature Physics, Sapporo, JP, Aug. 19, 2022: *“Topological Transformation of Magnetic Skyrmions via Thermal Current”*
22. **First Place poster prize:** Advances in Instrumentation, Microscopy & Microanalysis annual meeting, Columbus, OH, August 2016: *“Development of STEM-Holography”*

23. **Best Poster Award:** Oregon Center of Optics Symposium, McMinnville, OR, Sept. 14, 2015: “Development of Matter Wave Interferometry in a Scanning Transmission Electron Microscope”

## PROFESSIONAL DEVELOPMENT WORKSHOPS AND COURSES

### Scientific Teaching Short Course

July 30 – September 3, 2020 Virtual

- Six-course workshop where I engaged with the fundamentals of designing student-centered, remote courses that address the current teaching and learning environment.

### Mobile Summer Institute on Scientific Teaching

August 8-11, 2016 University of Oregon Eugene, OR

- Developed original, innovative classroom materials ready for immediate implementation.

### Alan Alda Communicating Science Workshop

May 14-15, 2015 University of Oregon Eugene, OR

- Workshopped several techniques intended to improve engagement and efficacy of science communication between me and my audience, whether it be students, academic conference, or the public.

## TEACHING WORK EXPERIENCE

2019

### Science Literacy Program Fellow

Winter

**PHYS 123** Galaxies and Cosmology – Survey Astronomy course (200 undergrads)

University of Oregon Eugene, OR

- Developed active learning in-class activities with Dr. Elsa Johnson
- Graded assignment solutions and exam questions

2015

### Science Literacy Program Fellow

Spring

**PHYS 253** Foundations of Physics I – calculus-based electricity & magnetism (82 undergrads)

Winter

**PHYS 252** Foundations of Physics I – calculus-based fluids, waves, optics (90 undergrads)

University of Oregon Eugene, OR

- Co-developed syllabus and course structure with Dr. McMorran
- Developed homework solutions and exam questions
- Taught approximately one third of the lectures as well as multiple tutorials

2013 – 2015

### Graduate Teaching Fellow

University of Oregon Eugene, OR

- Taught multiple lectures for both the intro and 300-level physics courses while professors were out of town.
- Developed homework solutions and exam questions
- Taught tutorials for intro level calculus and algebra-based physics.

2013

### Mad Scientist

Mad Science Salt Lake City, UT

- Led summer programs throughout the middle and elementary schools throughout both Salt Lake City and Park City, Utah.
- Taught children chemistry, biology, and physics through week long camps with daily “themes”

2011 – 2013

### Math & Physics Tutor

APTitude Academic Services Park City, UT

- Tutor subjects such as Algebra I & II, Geometry, Pre-Calculus, Calculus I & II, Multivariate Calculus, Physics for Scientists and Engineers I & II (Mechanics & Electricity and Magnetism), and Intro to Modern Physics to high school students with an emphasis on standardized test preparation.