

# Dustin Shipp

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## EDUCATION AND TRAINING

- 2014 **PhD in Optics**, *University of Rochester*, Rochester, NY  
Dissertation: Holographic angular-domain elastic scattering of single biological cells
- 2008 **BS in Physics, BS in Mathematics**, *Brigham Young University*, Provo, UT  
Thesis: Numerical model of non-collinear parametric down-conversion

## PROFESSIONAL POSITIONS

- 2024–present **Associate Professor**, *Utah Valley University*, Orem, UT
- 2018–2024 **Assistant Professor**, *Utah Valley University*, Orem, UT
- 2015–2018 **Research Fellow**, *University of Nottingham*, Nottingham, UK
- 2014–2015 **Lecturer**, *Rochester Institute of Technology*, Rochester, NY

## AWARDS

- 2023 **Equity, Diversity, and Inclusion (EID) Committee Champion**,  
*Champions of Inclusion*, Equity, Inclusion, and Diversity, Utah Valley University
- 2022 **First Place Best Design**,  
*Flexible Teaching Awards*, Office of Teaching and Learning, Utah Valley University
- 2022 **Second Place Best Delivery**,  
*Flexible Teaching Awards*, Office of Teaching and Learning, Utah Valley University
- 2022 **Foundations of Inclusion Certificate**,  
*Equity, Inclusion, and Diversity*, Utah Valley University
- 2019 **Fellow of the Higher Education Academy**, *Advance HE*
- 2014 **Advanced Teaching Certificate**,  
*Center for Excellence in Teaching and Learning*, University of Rochester

## TEACHING EXPERIENCE

- 2018–present **Assistant and Associate Professor**, *Department of Physics*, Utah Valley University
- Courses taught:
    - College Physics I and II
    - Physics for Scientists and Eng. I and II
    - Survey of Physical Science
    - Introduction to Experimental Physics I
    - Biophysics
  - Student Research Mentor (more details in Research Experience)
  - Teaching Development Courses
    - Mentoring Academy
    - Online Teaching Academy
    - Writing Enriched Workshop Series
    - Global-Intercultural Training
    - Community of Practice: Research Skills Development and Information Literacy
    - Learning Circles through Office of Teaching and Learning
    - Inclusive STEM Teaching Project
    - Foundations of Inclusion
    - Assessment and Inclusive Design
    - Project-based Learning

- 2014–2015 **Course Instructor**, *School of Physics and Astronomy*, Rochester Institute of Technology
- University Physics II
  - Honors Contract Course: Mentored student in building and evaluating an optical cloak
  - Biomedical Optics: Short course for students and faculty between semesters
- 2014 **Course Designer**, *Hajim School of Engineering and Applied Sciences*, University of Rochester
- Short course for freshman physics majors to review their mathematical skills
- 2013 **Program Leader**, *Hajim Engineering Pre-college Program*, University of Rochester
- One-week optics course for high school students with guest lectures and hands-on labs
- 2009–2013 **Graduate Teaching Assistant**, *The Institute of Optics*, University of Rochester
- Capstone laboratory course for master's students and undergraduates
  - Shortened labs with participants from industry as part of the Optics Summer School

## RESEARCH EXPERIENCE

- 2018–present **Principal Investigator**, *Center for Imaging and Biophotonics Experiments Advancing Medicine (CIBEAM)*, Utah Valley University
- Led group of undergraduate student researchers
  - Built device for microscopy and Raman hyperspectral imaging
  - Mentored student designing and building functional near-infrared spectroscopy (fNIRS) device
  - Integrated biotech instrumentation into physics laboratory
  - Investigated mammalian cells, bacteria, artificial tissue phantoms, Monte Carlo simulations, environmental microplastics, graphene
- 2015–2018 **Research Fellow**, *Biophotonics Group*, University of Nottingham
- Identified tumors in breast, lymph nodes, and skin with greater than 90% accuracy using Raman spectroscopy
  - Automated image-guidance to complete measurements for a surgical specimen surface in less than 20 minutes while maintaining high accuracy
  - Developed measurement protocols with clinicians to integrate devices into hospital procedures
  - Participated in design and commercialization of two devices for tumor margin evaluation
  - Managed a multi-center study implementing clinical prototype devices into hospitals
  - Assisted in securing funding from government and non-government sources
- 2014–2015 **Physics Education Researcher**, *Science and Mathematics Education Research Collaborative (SMERC)*, Rochester Institute of Technology
- Investigated student motivation in introductory physics courses
  - Found statistically significant correlation linking fear-oriented motivation with lower grades
- 2008–2014 **Graduate Research Assistant**, *Biomedical Spectroscopy Lab*, University of Rochester
- Built and automated an amplitude- and phase-sensitive angular light scattering system
  - Measured organelle sizes in single cells with 60 nm accuracy
  - Computationally reduced spatial coherence and speckle in holographic scattering data
  - Collaborated with medical researchers to design experiments measuring time-resolved structural and molecular changes during T cell activation, platelet degranulation, and apoptosis
  - Mentored multiple graduate and undergraduate students
- 2006–2008 **Undergraduate Research Assistant**, *Quantum Optics Lab*, Brigham Young University
- Developed and experimentally confirmed a numerical model for the propagation of down-converted photons

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## LEADERSHIP AND SERVICE

- 2024-2025 **Site Coordinator**, *Western Alliance to Expand Student Opportunities (WAESO)*
- 2022-2024 **Undergraduate Review Committee**, *Western Alliance to Expand Student Opportunities (WAESO)*
- 2022-2025 **Excellence in Academic Advising**, *National Academic Advising Association (NACADA)*, Utah Valley University
- 2020-2024 **Department Representative**, *College of Science Engagement Committee*, Utah Valley University
- 2020-2023 **College Representative**, *Writing Enriched Committee*, Utah Valley University
- 2019-2024 **Section Leadership**, *Idaho-Utah Section*, American Association of Physics Teachers
- 2019 - President Elect
  - 2023 - Vice President
  - 2024 - President
- 2019-2025 **Faculty Senate**, *Department of Physics Representative*, Utah Valley University
- 2019-2022 **Advisory Board**, *Scholarly and Creative Undergraduate Learning Partnership Team (SCULPT)*, Utah Valley University
- 2018-present **Other Committee Service**, *College of Science/Department of Physics*, Utah Valley University
- Faculty Search Committee
  - Physics Scholarship evaluation (*Committee Chair, 2022-2024*)
  - College of Science Flexible Teaching Awards review
- 2014-2015 **Committee Member**, *Rochester International Year of Light Committee*, Rochester, NY
- 2011-2012 **Senior Graduate Student Representative**, *The Institute of Optics*, University of Rochester
- 2010-2014 **Student Chapter Leadership**, *SPIE*, University of Rochester
- Served terms as President, Vice-President, Secretary, and Treasurer
- 2012-present **Peer Reviewer**
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|--------------------------|----------------------------|-----------------------|
| ○ Analytical Chemistry   | ○ J. Biomedical Optics     | ○ J. OSA B            |
| ○ J. Biophotonics        | ○ Medical Physics          | ○ Photonics           |
| ○ Analyst                | ○ Applied Optics           | ○ International J. of |
| ○ Biomed. Optics Express | ○ Measurement Sci. & Tech. | Molecular Sciences    |
| ○ Optics Express         | ○ Biomedical Physics &     | ○ Polymers            |
| ○ Selected Topics in     | Engineering Express        | ○ Sensors             |
| Quantum Electronics      | ○ J. Modern Optics         | ○ Applied Sciences    |
| ○ Scientific Reports     | ○ OSA Continuum            | ○ Optics Letters      |
- 2018-present **Member**, *American Association of Physics Teachers (AAPT)*
- 2009-present **Member**, *SPIE*
- 2009-present **Member**, *Optica (Formerly OSA)*

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## FUNDING RECEIVED

### External funding

- 2022 **Western Alliance to Expand Student Opportunities**, *Improving burn classification using Raman spectroscopy*, One student supported, **\$1,500**
- 2022 **Western Alliance to Expand Student Opportunities**, *Burn classification through Raman spectroscopy*, One student supported (plus materials), **\$1,927**
- 2018 **Nottingham University Hospitals Charity**, *Intra-operative spectroscopic sentinel lymph node evaluation in breast cancer*, Research grant, **£10,000** ( $\approx$  \$14,000)
- 2017 **Breast Cancer Now**, *Intraoperative spectroscopic evaluation of the sentinel lymph nodes in breast cancer*, Project grant, **£196,271** ( $\approx$  \$260,000)
- 2016 †**University of Nottingham**, *Raman spectral histopathology of breast cancer recession margins*, Research staff travel prize, **£600** ( $\approx$  \$894)

### Student Funding through Utah Valley University

- 2019–2023 **\*Undergraduate Research Scholarly and Creative Activities (URSCA)**, Fourteen students supported, **\$32,380 total**
- 2022 **Grants for Engaged Learning (GEL) Carrot**, One student supported (plus equipment), **\$29,740**
- 2019-2022 **\*†College of Science Scholarly Activities Committee (SAC)**, Seventeen students supported (including funding for in-class research projects), **\$3,115 total**
- 2019–2021 **\*D. Clark and Pam Turner Endowment for Engaged Learning in STEM Research Fellowships (TEELS)**, Three students supported, **\$12,000 total**
- 2020–2021 **\*†Undergraduate Research Scholarly and Creative Activities (URSCA) Dissemination Grant**, Three students supported, **\$2,710 total**
- 2019 **\*Board of Trustees Engaged Learning Scholarship (BoTS)**, One student supported, **\$6,000**
- 2019 **Undergraduate Research Summer Institute Grant (URSIG)**, Five students supported, **\$14,339**

\* = written by undergraduate UVU student(s), † = includes dissemination/travel grant

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## PUBLICATIONS

**D. W. Shipp**, “Raman Microscopy,” in J. Xia, R. Choe, *Biomedical Optical Imaging: From Nanoscopy to Tomography*, AIP Publishing, Melville, NY (2021).

R. Boitor, C. de Wolf, F. Weesie, **D. W. Shipp**, S. Varma, D. Veitch, A. Wernham, A. Koloydenko, G. Puppels, T. Nijsten, H. C. Williams, P. Caspers, I. Notingher, “Clinical integration of Fast Raman spectroscopy for Mohs micrographic surgery of basal cell carcinoma,” *Biomedical Optics Express* **12**(4):2015-2026 (2021).

M. G. Lizio, Z. Liao, **D. W. Shipp**, R. Boitor, R. Mihai, J. S. Sharp, M. Russell, H. Khout, E. A. Rakha, I. Notingher, “Combined total internal reflection AF spectral-imaging and Raman spectroscopy for fast assessment of surgical margins during breast cancer surgery,” *Biomedical Optics Express* **12**(2):940-954 (2021).

\*B. Durrant, \*M. Trappett, **D. W. Shipp**, I. Notingher, “Live-cell molecular imaging with Raman microscopy,” *Current Opinion in Chemical Biology* **51**:138-145 (2019).

C. Corden, **D. W. Shipp**, P. Matousek, I. Notingher, “Fast Raman spectral mapping of highly fluorescing samples by time-gated spectral multiplexed detection,” *Optics Letters* **43**(23): 5733-5736 (2018).

**D. W. Shipp**, E. A. Rakha, A. A. Koloydenko, R. D. Macmillan, I. O. Ellis, I. Notingher, “Intra-operative spectroscopic assessment of surgical margins during breast conserving surgery,” *Breast Cancer Research* **20**(69) (2018).

R. Boitor, K. Kong, **D. W. Shipp**, S. Varma, A. A. Koloydenko, K. Kulkarni, S. Elsheikh, T. Bakker-Schut, P. Caspers, G. Puppels, M. van der Wolf, E. Sokolova, T.E.C. Nijsten, B. Salence, H. Williams, I. Notingher, “Automated multimodal spectral histopathology for quantitative diagnosis of residual tumour during basal cell carcinoma surgery,” *Biomedical Optics Express* **8**(12): 5749-5766 (2017).

†F. Sinjab, G. Sicilia, **D. W. Shipp**, M. Marlow, and I. Notingher, “Label-free Raman hyperspectral imaging of single cells cultured on polymer substrates,” *Applied Spectroscopy* **71**(12): 2595-2607 (2017).

**D. W. Shipp**, F. Sinjab, and I. Notingher, “Raman spectroscopy: Techniques and applications in the life sciences,” *Advances in Optics and Photonics* **9**(2): 315-428 (2017).

**D. W. Shipp**, R. Qian, and A. J. Berger, “Angular-domain scattering interferometry,” *Optics Letters* **38**(22): 4750-4753 (2013).

\* = Undergraduate UVU Student, † = Editor’s Choice

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## PATENTS

I. Notingher, C. Corden, **D. W. Shipp**, “Raman spectroscopy method and apparatus,” International Patent No. WO2020/058702 A1 (September 17, 2019).

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## STUDENT THESIS SUPERVISED

B. Durrant, “Raman spectroscopic analysis of bacteria,” Honors Thesis, Utah Valley University (Defended May 4, 2021).

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## PRESENTATIONS

*Invited Presentation* - **D. W. Shipp**, \*E. Ballantyne, \*K. Narvaez, \*A. Cruz, \*S. Smith, S. Rocks, “Identification of environmental microplastics using Raman spectroscopy,” *The Great Scientific Exchange (SciX)*, Raleigh, North Carolina, (October 24, 2024).

*Oral Presentation* - M. G. Lizio, Z. Yiao, **D. W. Shipp**, R. Boitor, R. Mihai, J. S. Sharp, M. Russell, H. Khout, E. A. Rakha, I. Notingher, “Employing total internal reflection AF spectral imaging and Raman spectroscopy for margin assessment: An innovative technological approach,” *Association of Breast Surgery Conference*, Bournemouth, United Kingdom, (May 13-14, 2024).

*Oral Presentation* - \*E. Ballantyne, **D. W. Shipp**, “Impact of student created homework problems in physics classrooms,” *Idaho-Utah Section, American Association of Physics Teachers (AAPT)*, Orem, Utah (April 13, 2024).

*Poster Presentation* - \*E. Ballantyne, **D. W. Shipp**, “Student-designed homework in introductory physics,” *UVU Symposium on Teaching and Learning*, Orem, Utah (March 28, 2024).

*Poster Presentation* - **D. W. Shipp**, “Online physics, but not in a vacuum,” *UVU Symposium on Teaching and Learning*, Orem, Utah (March 28, 2024).

*Oral Presentation* - \*E. Ballantyne, A. Chaturvedi, **D. W. Shipp**, M. Lizio, “Raman spectroscopic analysis of fixed lung cancer sections,” *Utah Conference for Undergraduate Research: Huntsman Cancer Session*, Orem, Utah (February 16, 2024).

*Poster Presentation* - \*T. Caldwell, **D. W. Shipp**, “GPU-accelerated Monte Carlo Raman spectroscopy simulation: Unlocking computational speed for cancer detection,” *Utah Conference for Undergraduate Research: Huntsman Cancer Session*, Orem, Utah (February 16, 2024).

*Poster Presentation* - \*S. Stringham, \*A. Elison, K. Shurtleff, **D. W. Shipp**, “Analysis of graphene samples Using a 785nm Raman spectrometer and construction of a carbon spectral library,” *Utah Conference for Undergraduate Research*, Orem, Utah (February 16, 2024).

*Poster Presentation* - \*T. Daynes, \*T. O’Loughlin, \*E. Prazak, **D. W. Shipp**, “Analysis of super-black coatings versus black paints,” *Utah Conference for Undergraduate Research*, Orem, Utah (February 16, 2024).

*Poster Presentation* - \*S. Brown, \*C. Draughon, \*S. Pepper, \*U. Thornock, **D. W. Shipp**, “Mechanical to electrical energy conversion of a door swing,” *Utah Conference for Undergraduate Research*, Orem, Utah (February 16, 2024).

*Poster Presentation* - \*J. Walton, \*M. Astill, \*J. Nelson, **D. W. Shipp**, “Meta-analysis of eddy current braking systems,” *Utah Conference for Undergraduate Research*, Orem, Utah (February 16, 2024).

*Oral Presentation* - \*E. Ballantyne, A. Chaturvedi, **D. W. Shipp**, M. Lizio, “Raman spectroscopic analysis of lung tissue sections,” *SPIE Photonics West*, San Francisco, California, (January 27, 2024).

*Oral Presentation* - \*E. Ballantyne, A. Cruz, S. Rocks, **D. W. Shipp**, “Techniques for small target identification and inter-spectrometer transferability modeled on environmental microplastics,” *SPIE Photonics West*, San Francisco, California, (January 27, 2024).

*Oral Presentation* - **D. W. Shipp**, “Physics homework: a choose your own adventure,” *Idaho-Utah Section, American Association of Physics Teachers (AAPT)*, Twin Falls, Idaho, (April 15, 2023).

‡*Poster Presentation* - \*T. Daynes, \*T. O’Loughlin, \*E. Prazak, **D. W. Shipp**, “Analysis of super-black coatings versus black paints,” *UVU Research Showcase*, Orem, Utah (April 4, 2023).

*Poster Presentation* - \*E. Ballantyne, \*J. Hales, \*H. Rivera, \*P. Lagunas, \*J. Jones, **D. W. Shipp**, “Increasing the detection range of Raman spectroscopy using an added scattering agent,” *UVU Research Showcase*, Orem, Utah (April 4, 2023).

*Poster Presentation* - \*E. Ballantyne, **D. W. Shipp**, “Effectiveness of student created homework on performance and attitude,” *UVU Symposium on Teaching and Learning*, Orem, Utah (March 30, 2023).

*Poster Presentation* - \*M. Christensen, \*E. Ballantyne, D. Stephen, **D. W. Shipp**, “Utilizing Raman spectroscopy to identify soft tissues in fossiles,” *Utah Conference for Undergraduate Research*, Salt Lake City, Utah (February 17, 2023).

*Oral Presentation* - **D. W. Shipp**, “Online Physics - But NOT in a Vacuum,” *Excellence in Online Teaching*, Nevada State College, Online (February 3, 2023).

*Poster Presentation* - \*E. Ballantyne, \*J. Hales, \*H. Rivera, \*P. Lagunas, \*J. Jones, **D. W. Shipp**, “Increasing the detection range of Raman spectroscopy using an added scattering agent,” *APS Conferences for Undergraduate Women in Physics (CUWiP)*, Santa Cruz, California (January 21, 2023).

*Poster Presentation* - \*S. West, **D. W. Shipp**, “Raman-based machine learning classification of burn severity,” *APS Conferences for Undergraduate Women in Physics (CUWiP)*, Santa Cruz, California (January 21, 2023).

*Oral Presentation* - \*E. Ballantyne, \*J. Hales, \*P. Lagunas, \*H. Rivera, \*J. Jones, **D. W. Shipp**, “Monte Carlo simulation for Raman spectroscopy system analysis,” *American Physical Society - Four Corners Section Meeting*, Albuquerque, New Mexico (October 14, 2022).

*Poster Presentation* - \*S. West, **D. W. Shipp**, “Analyzing biochemical changes in pork tissue using Raman spectroscopy,” *APS Conferences for Undergraduate Women in Physics (CUWiP)*, Online (January 21–23, 2022).

*Oral Presentation* - **D. W. Shipp**, “Raman spectroscopy of biological samples,” *Physics Department Colloquium*, Idaho State University, Online (September 27, 2021).

*Oral Presentation* - \*J. Hales, \*J. Jones, **D. W. Shipp**, “The effect of scattering on spatial resolution of Raman spectroscopy in tissue,” *OSA Biophotonics Congress*, Online (April 14, 2021).

*Poster Presentation* - \*P. Lagunas, \*H. Rivera, **D. W. Shipp**, “Tissue phantom study to characterize detection of cancer cells with Raman spectroscopy,” *Utah Academy of Science, Arts, and Letters*, Online (March 20, 2021).

*Poster Presentation* - \*B. Durrant, \*S. Bennion, **D. W. Shipp**, “Raman spectroscopic analysis,” *Utah Conference for Undergraduate Research*, Online (February 19, 2021).

*Oral Presentation* - \*E. Walker, \*D. Carroll, **D. W. Shipp**, “Making lab classes count,” *Teaching 4 Learning*, Provo, Utah (March 6, 2020).

*Oral Presentation* - \*E. Ballantyne, **D. W. Shipp**, “Raman imaging of single cellular metabolism,” *Utah Conference for Undergraduate Research*, Logan, Utah (February 7, 2020).

*Poster Presentation* - \*B. Durrant, \*S. Bennion, **D. W. Shipp**, “Building a classifier to discriminate bacteria with Raman spectroscopy,” *Utah Conference for Undergraduate Research*, Logan, Utah (February 7, 2020).

*Oral Presentation* - \*L. Buck, **D. W. Shipp**, “Differentiating cancer cells using Raman spectroscopy,” *SPIE Photonics West*, San Francisco, California (February 1–6, 2020).

*Poster Presentation* - \*J. Jones, \*J. Hales, **D. W. Shipp**, “The effect of scattering on spatial resolution of Raman spectroscopy in tissue,” *SPIE Photonics West*, San Francisco, California (February 1–6, 2020).

*Poster Presentation* - \*J. Jones, \*J. Hales, **D. W. Shipp**, “The effect of scattering on spatial resolution of Raman spectroscopy in tissue,” *APS Conferences for Undergraduate Women in Physics (CUWiP)*, Spearfish, South Dakota (January 17–19, 2020).

*Poster Presentation* - \*J. Jones, **D. W. Shipp**, “The effect of scattering on spatial resolution of Raman spectroscopy in tissue,” *UVU Research Showcase*, Orem, Utah, (October 15, 2019).

*Oral Presentation* - **D. W. Shipp**, “Prioritizing content in experimental physics courses,” *Idaho-Utah Section, American Association of Physics Teachers (AAPT)*, Logan, Utah, (March 2, 2019).

*Invited Talk* - **D. W. Shipp**, “Intra-operative detection of residual tumor at lumpectomy surface during breast conserving surgery by Multi-spectral Histopathology,” *Photonics as a Tool for Surgery*, Gustave Roussy Institute, Paris, France (November 13, 2017).

*Oral Presentation* - **D. W. Shipp**, K. Kong, E. Rakha, I. Ellis, I. Notingher, “Multi-spectral histopathology for rapid evaluation of breast tumor margins,” *OSA European Conferences on Biomedical Optics*, Munich, Germany (June 25, 2017).

†*Poster Presentation* - **D. W. Shipp**, K. Kong, E. Rakha, I. Ellis, I. Notingher, “Laser-based tool to help breast cancer surgeons check their work,” *Research Showcase*, University of Nottingham, Nottingham, United Kingdom (June 21, 2017).

†*Poster Presentation* - **D. W. Shipp**, K. Kong, E. Rakha, I. Ellis, I. Notingher, “Speeding up breast cancer margin evaluation using multi-spectral histopathology,” *STEM for Britain*, UK Parliament, London, United Kingdom (March 13, 2017).

*Oral Presentation* - **D. W. Shipp**, “Raman Spectroscopy: Using light to speed up medical diagnosis,” *Physics Department Colloquium*, Rochester Institute of Technology, Rochester, New York (October 21, 2016).

*Poster Presentation* - **D. W. Shipp**, K. Kong, E. Rakha, I. Ellis, I. Notingher, “Raman spectral histopathology of breast cancer recession margins,” *OSA Frontiers in Optics*, Rochester, New York (October 19, 2016).

*Oral Presentation* - **D. W. Shipp**, K. Kong, E. Rakha, I. Ellis, I. Notingher, “Intra-operative assessment of sentinel lymph nodes by selective-scanning Raman spectroscopy,” *Pathological Society*, Nottingham, United Kingdom (June 29, 2016).

*Poster Presentation* - **D. W. Shipp**, “Motivation in non-major students in an introductory physics class,” *CASTLE Symposium*, Rochester Institute of Technology, Rochester, New York (May 20, 2015).

*Oral Presentation* - A. E. Cannaday, **D. W. Shipp**, J. Sorrells, and A. J. Berger, “Determining the optimal system parameters to detect organelle size changes in individual cells using angular domain elastic scattering,” *SPIE Photonics West*, San Francisco, California (February 8, 2015).

‡*Oral Presentation* - **D. W. Shipp**, “Precise, time-lapsed measurements of organelle sizes in single cells by Holographic Angular Domain Elastic Scattering (HADES),” *SPIE Student Colloquium Series*, University of Rochester, Rochester, New York (June 24, 2014).

*Oral Presentation* - **D. W. Shipp**, R. Qian, Ashley E. Cannaday, and A. J. Berger, “Precise, time-lapsed measurements of organelle sizes in single cells by Holographic Angular Domain Elastic Scattering,” *SPIE Photonics West*, San Francisco, California (February 2, 2014).



*Poster Presentation* - **D. W. Shipp**, R. Qian, and A. J. Berger, “Angular-domain scattering interferometry,” *ECI Advances in Optics for Biotechnology, Medicine, and Surgery*, Tahoe, California (June 2-5, 2013).

*Oral Presentation* - **D. W. Shipp**, S. Mitra, T. H. Foster, and A. J. Berger, “Effect of photodynamic therapy on single cancer cells studied by integrated Raman and angular scattering microscopy,” *SPIE Photonics West*, San Francisco, California (January 22, 2012).

*Poster Presentation* - **D. W. Shipp**, D. C. Davidson, M. Kiebala, S. B. Maggirwar, and A. J. Berger, “Platelet activation studied by Raman and angular scattering microscopy,” *World AIDS Day*, University of Rochester Medical Center, Rochester, New York (December 1, 2011).

*Oral Presentation* - **D. W. Shipp** and A. J. Berger, “Time-lapsed integrated Raman and angular scattering microscopy of immune cells,” *SPIE Photonics West*, San Francisco, California (January 23, 2011).

*Oral Presentation* - **D. W. Shipp** and A. J. Berger, “Time-lapsed integrated Raman and angular scattering microscopy of immune cells,” *OSA Frontiers in Optics*, Rochester, New York (October 27, 2010).

\* = Undergraduate UVU Student, † = Highly selective, ‡ = Winner: Best presentation