Theodore A. Corcovilos, Ph.D.

Assistant Professor
Duquesne University of the Holy Spirit, Pittsburgh, PA, USA 15282
Bayer School of Natural and Environmental Sciences, Department of Physics
(412) 396-5973 corcovilost@duq.edu @TedCorcovilos

I Professional Preparation and Experience

I.A Education

California Institute of Technology (Pasadena, CA). Ph.D. in Physics, June 2008. Dissertation advisor: Prof. Nai-Chang Yeh. Dissertation title: *Fluid phase thermodynamics: I) Nucleate pool boiling of oxygen under magnetically enhanced gravity and II) Superconducting cavity resonators for high-stability frequency references and precision density measurements of helium-4 gas.*

University of Tennessee – Knoxville (Knoxville, TN). B.A. in College Scholars, May 1999. *Summa cum laude.*

I.B Work experience

I.B.1 Academic appointments

Duquesne University of the Holy Spirit, Bayer School of Natural and Environmental Sciences, Department of Physics (Pittsburgh, PA). Assistant Professor, tenure track (August 2013–present).

I.B.2 Pertinent non-academic work

RJ Lee Group (Monroeville, PA). Scientific consultant. (January 2017–January 2018).

Pennsylvania State University, Dept. of Physics (University Park, PA). Postdoctoral research associate under Prof. David Weiss (April 2010–June 2013.)

Rice University, Dept. of Physics (Houston, TX). Postdoctoral research associate under Prof. Randy Hulet. (October 2007–April 2010).

I.C Memberships in professional organizations

American Physical Society, member (1997–present).

Optical Society of America, member (2012–present).

American Association of Physics Teachers, member (2013–present).

Society of Physics Students, faculty member (2013–present), graduate student member (1999–2008), undergraduate student member (1996–1999).

Pittsburgh Quantum Institute, member (2013–present), executive board member (2014–present).

Society for Applied Spectroscopy, member (2016–present)

American Society for Mass Spectrometry, member (2016–present)

II Teaching

II.A Undergraduate courses taught

[1] Physics 302, Optics (Fall 2013, Fall 2015, Fall 2017), 3 credits, lecture and recitation.

[2] Physics 332, Electronics (Fall 2019), 3 credits, lecture, recitation, and lab.

[3] Physics 473, Electrodynamics (Spring 2014, Spring 2016, Spring 2018), 3 credits, lecture and recitation.

[4] Physics 474, Quantum Mechanics (Fall 2014, Fall 2016, Fall 2018), 3 credits, lecture and recitation.

[5] Physics 475, Advanced Quantum Mechanics (Spring 2015, Spring 2017, Spring 2019), 3 credits, lecture and recitation – New class developed by myself.

[6] Physics 487, Special Topics (Fall 2017), 1 credit, independent study. (Topic was Laser Optics.)

[7] Physics 499W, Senior Paper (Fall 2017), 2 credits, independent research (Various topics). Note that previously students had registered for this course with the department chair being the instructor of record, even if they were under my supervision.

II.B Academic advisement or supervision

II.B.1 Dissertation committees as a member

[1] Joyce Konigsburg, "Relational Interreligious Dialogue: Interdisciplinary Arguments from Creator/Creature Theology and Quantum Entanglement," (Duquesne, Ph.D. Theology, March 28, 2017).

[2] Binbin Tian (University of Pittsburgh, Ph.D. Physics, expected May 2019).

II.B.2 Thesis committees as a member

[1] Madeleine Wood, "Identification and detection of peroxide explosive compounds and their degradation markers using gas chromatography–mass spectrometry," (Duquesne, M.S. Forensic Science and Law, April 12, 2019).

[2] Aria Parangi, "Utilization of Fluorescent Chemosensors to Quantify Pb^{2+} in Aqueous Media," (Duquesne, M.S. Environmental Science, October 24, 2016).

II.C Publications pertaining to teaching activities

The numbers of citations listed below were retrieved from Thomson-Reuters *Web of Science* on 4/10/2019. The journal impact factors (JIF) are those given in *Journal Citation Reports* (Thomson-Reuters, 2017 ed.).

[1] ***Theodore A. Corcovilos***. "A Simple game simulating quantum measurements of qubits". *American Journal of Physics* 86.7 (2018), pp. 510–517. DOI: 10.1119/1.5036620. arXiv: 1804.08417. Cites: 1, JIF: 1.03.

II.D Grants/funding received for teaching activities

II.D.1 Grants received

[1] (Internal) Bayer School of Natural and Environmental Sciences, "Entering Mentoring" travel stipend, (July 1, 2017, $400).

II.E Presentations pertaining to teaching

[1] ***Theodore A. Corcovilos***. "A Quantum Measurement Game for Undergraduates". American Association of Physics Teachers, Summer Meeting (Cincinnati, OH), July 25, 2017. (National conference).

[2] ***Theodore A. Corcovilos***. "A Quantum Measurement Game for Undergraduate Students". PQI2017: Quantum Revolutions (Pittsburgh, PA), Apr. 26, 2017. URL: http://www.pqi.org/pqi2017. (Regional conference).

[3] ***Theodore A. Corcovilos***. "A Quantum state guessing game". American Association of Physics Teachers, Western Pennsylvania Section (Erie, PA), Oct. 8, 2016. (Regional conference).

II.F Other activities relevant to teaching

II.F.1 Undergraduate research mentees

Dates in parentheses are when the students worked with me on research projects. Dates after a degree are the (expected) graduation dates. Underrepresented minorities (women and racial/ethnic minorities) are indicated with *.

[1] **Connor Apa**, (Spring 2019-Summer 2019) B.A. in Physics and B.S. in Biochemistry, Spring 2020.

[2] **Benjamin Kazimer**, (Spring 2019) B.S. in Physics and B.S. in Biomedical Engineering, Spring 2022.

[3] **Devin O'Neill**, (Spring 2019) B.S. in Physics, Spring 2023.

[4] **Tom Aumer**, (Spring 2019) B.S. in Physics, Spring 2023.

[5] **Ross Aguilar***, (Summer 2018, Spring 2019) B.A. in Physics, Spring 2021.

[6] **Madelyn Hoying***, (Summer 2017) B.S. in Biomechanical Engineering, Spring 2020.

[7] **Jahnavee Mittal***, (Spring 2017–present) B.S. in Physics, Spring 2020.

[8] **Spencer Graves**, (Fall 2016–Fall 2018) B.A. in Physics and B.S. in Mechanical Engineering, Spring 2020.

[9] **Jake Kline**, (Summer 2016–Summer 2017) B.A. in Physics and B.S. in Mechanical Engineering, Spring 2020.

[10] **Louis Sollon**, (Summer 2016) B.S. in Physics, Spring 2018.

[11] **Sam Lehr**, (Spring 2016) B.S. in Environmental Science, Spring 2016. Sam is continuing to the M.S. in Environmental Science program at Duquesne.

[12] **Julie Gillis***, (Spring 2014–Spring 2015, Fall 2015) B.S. in Physics and Computer Science, Spring 2016. Julie's research in my lab led to a prestigious summer fellowship at the Fermilab National Accelerator Laboratory (Batavia, IL) in 2015. M.S. in Optical Sciences at the University of Arizona, 2019. Now a research engineer at Nikon.

[13] **Timothy Ireland**, (Spring 2015–Summer 2017) B.S. in Physics, Mathematics, and Computer Science, Summer 2017. Tim has accepted a job in quantitative financial analysis.

[14] **Gage Tiber**, (Fall 2013–Spring 2013, Fall 2014–Spring 2017) B.S. in Physics, Spring 2017. Gage is attending graduate school in Environmental Engineering at the University of Dayton, starting Fall 2017.

[15] **Robert Brooke**, (Spring 2014–Fall 2015, Summer 2016–Fall 2016) B.S. in Physics, Fall 2016 and B.S. in Mechanical Engineering (University of Pittsburgh), Fall 2016. Currently employed as a design engineer for Penn State Electro-Optics Center (Freeport, PA).

[16] **Issac Davies**, (Summer 2015–Fall 2015, Fall 2016–Fall 2017) B.S. in Physics, Fall 2017. M.S. in Optics, University of Oregon 2018.

[17] **Edward Heinle**, (Spring 2015–Summer 2015) B.S. in Physics, Spring 2017 and B.S. in Mechanical Engineering (University of Pittsburgh), Spring 2017. Employed as a planning manager for Geisinger Health System (Fall 2017).

[18] **Drew Finton**, (Spring 2015) B.S. in Physics, Spring 2015. Currently a graduate student in physics at Lehigh University (Lehigh, PA).

[19] **Christopher Zaccagnini**, (Spring 2014–Summer 2014) B.S. in Physics, Fall 2017 and B.S. in Mechanical Engineering (University of Pittsburgh), Fall 2017.

[20] **Anthony Ruggiero**, (Spring 2014) B.S. in Physics, Spring 2015. Currently a graduate student in physics at Montana State University (Bozeman, MT).

II.F.2 High school student mentees

Dates in parentheses are when the students worked with me on research projects. Dates after a degree are the (expected) graduation dates. Underrepresented minorities (women and racial/ethnic minorities) are indicated with *. (Names abbreviated to protect identities of minors.)

[1] **B. B.***, (Summer 2017) Shaler Area High School (Pittsburgh, PA), 2018. Summer research sponsored by the American Chemical Society's Project SEED.

[2] **D. H.**, (Summer 2017) Allderdice High School (Pittsburgh, PA), 2018. Shadowing as part of "Science Research" class.

II.F.3 Undergraduate senior papers/projects supervised

The Bachelor of Science degree in Physics at Duquesne requires the completion of at least one semester of research with a faculty member resulting in a written report and oral presentation. Also, the Bachelor of Science degrees in engineering at the University of Pittsburgh require a group senior design project. The following students have completed senior papers or projects under my supervision.

[1] **Isaac Davies**, (Fall 2017) "Simulation of Ion Energy Loss in an Ion Mobility Spectrometry and Optical Spectroscopy Combination System."

[2] **Timothy Ireland**, (Summer 2017) "Development of a picometer resolution optical wavemeter."

[3] **Gage Tiber**, (Spring 2017) "Design of a portable, homemade, and inexpensive LED-based fluorometer."

[4] **Robert Brooke**, **Maxwell Praniewicz**, **Garrett Ott**, **and Guilherme Tamassia**, (Summer 2016, Pitt) "Laser polarization controller."

[5] **Julie Gillis**, (Fall 2015) "Optimization of the diode-pumped solid state Nd:YLF amplifier chain for the 263 nm drive laser at the FAST facility."

II.F.4 Student achievements

Awards and honors received by students while working under my supervision.

[1] **Jahnavee Mittal**, Duquesne Undergraduate Research Summer Symposium (2018): Selected as a plenary session speaker.

[2] **Madelyn Hoying**, NASA Langley research internship (2018)

[3] **Jake Kline**, Duquesne Undergraduate Research Program Fellowship, Bayer Fellow (2017)

[4] **Issac Davies**, Washington State University, Research Experience for Undergraduates Fellowship (2017)

[5] **Gage Tiber**, Duquesne University, Bayer School of Natural and Environmental Sciences Excellence in Physics Award (2017)

[6] **Gage Tiber**, Duquesne University, Department of Physics, Senior Research Award (2017)

[7] **Gage Tiber**, Duquesne University, Department of Physics, Certificate of Excellence (2017)

[8] **Gage Tiber**, Duquesne Undergraduate Research Symposium Awards (2017): Bayer School of Natural and Environmental Sciences Award of Excellence in Basic Research, ΦΚΦ Honor Society Honorable Mention.

[9] **Jake Kline**, Duquesne Undergraduate Research Symposium Awards (2017): Bayer School of Natural and Environmental Sciences, Honorable Mention

[10] **Gage Tiber**, Duquesne Undergraduate Research Program Fellowship, Bayer Fellow (2016)

[11] **Julie Gillis**, Duquesne University, Bayer School of Natural and Environmental Sciences Excellence in Physics Award (2016)

[12] **Gage Tiber**, Duquesne Undergraduate Research Symposium Awards (2016): Center for Environmental Sustainability Award Winner, ΦΚΦ Honor Society Honorable Mention.

[13] **Gage Tiber**, Duquesne Undergraduate Research Summer Symposium (2015): Selected as a plenary session speaker.

[14] **Julie Gillis**, Department of Energy Science Undergraduate Laboratory Internship (2015)

[15] **Julie Gillis**, Duquesne Undergraduate Research Summer Symposium (2014): Selected as a plenary session speaker.

II.F.5 Professional development related to teaching

External workshops attended:

[1] American Association of Physics Teachers, Faculty Online Learning Community (biweekly meetings, Dec. 2015–Dec. 2016).

[2] American Association of Physics Teachers, New Faculty Workshop (11/19/2015). (National workshop).

[3] American Association of Colleges & Universities networking conference: "Transforming STEM education" (11/12/2015). (National workshop).

Duquesne workshops attended:

[1] Center for Teaching Excellence Workshop: "Documenting Rigor in Teaching" (2/26/2019).

[2] Center for Teaching Excellence Workshop: "Student Learning and Mental Health" (9/25/2018).

[3] "Entering Mentoring" Multidisciplinary Research Mentoring workshop series (Spring 2017).

[4] Center for Teaching Excellence Microworkshop: "Just a TAD–Transparent Assignment Design" (1/24/2017).

[5] Center for Catholic Intellectual Tradition colloquium: "Challenges in Ethics Education and Skills to Navigate Them" (11/16/2016).

[6] Spiritan Pedagogy lunch: "Building Authentic Relationships Across Campus and Beyond" (11/7/2016).

[7] Center for Teaching Excellence Inspired Teaching Retreat: "Motivating students and ourselves for the future" (5/14/2015).

[8] Center for Teaching Excellence and Division of Academic Affairs workshop: "Preparing an effective case for third-year review, promotion, and tenure" (4/7/2015).

[9] Center for Teaching Excellence workshop: "Beyond the yellow highlighter: Getting students to read" (2/17/2015).

[10] Center for Teaching Excellence workshop: "Rubrics to promote and assess student learning: Hands-on" (2/10/2015).

[11] Center for Teaching Excellence and School of Leadership and Professional Advancement workshop: "The Face of the veteran student: Opportunities and challenges" (10/30/2014).

[12] Center for Teaching Excellence book study: *Assessing Student Learning: A Common Sense Guide* by Linda Suskie. (10/7/2014).

[13] Center for Teaching Excellence and Division of Academic Affairs workshop: "Preparing an effective case for third-year review, promotion, and tenure" (4/1/2014).

[14] Center for Teaching Excellence and Education Technology workshop: "Apps students are using to study" (3/20/2014).

[15] Human resources workshop: "Student employment" (12/10/2013).

[16] Human resources workshop: "Motivating student employees" (12/10/2013).

[17] Center for Teaching Excellence workshop: "Effective course and syllabus design" (11/20/2013).

[18] New faculty orientation (8/19/2013).

III Scholarship

Universal scholarship IDs

Orcid ID: 0000-0001-5716-1188

Thomson Reuters ResearcherID: G-8699-2012

Scopus Author ID: 6506655683

Note on bibliography entries

Undergraduate student coauthors are indicated by *. Graduate student coauthors are indicated by †. High school student coauthors are indicated by §. The corresponding author is indicated by *italics*. The numbers of citations listed below were retrieved from Thomson-Reuters *Web of Science* on 4/10/2019. The journal impact factors (JIF) are those given in *Journal Citation Reports* (Thomson-Reuters, 2017 ed.).

III.A Scholarly publications

III.A.1 Refereed articles

[1] ***Theodore A. Corcovilos*** and Jahnavee Mittal*. "Two-dimensional optical quasicrystal potentials for ultracold atom experiments". *Applied Optics* 58.9 (Mar. 15, 2019), pp. 2256–2263. DOI: 10.1364/AO.58.002256. arXiv: 1903.06610. Cites: 0, JIF: 1.79.

[2] Evan Perez*, **Theodore Corcovilos**, John Gibson, Jonathan Martens, Giel Berden, Jos Oomens, and *Michael Van Stipdonk*. "Isotope labeling and infrared multiple-photon photodissociation investigation of product ions generated by dissociation of $[ZnNO_3(CH_3OH)_2]^+$: Conversion of methanol to formaldehyde". *European Journal of Mass Spectroscopy* 25.1 (Feb. 18, 2019), pp. 58–72. DOI: 10.1177/1469066718809881. Cites: 0, JIF: 1.00.

[3] *Wibe A. de Jong*, Phuong D. Dau, Richard E. Wilson, Joaquim Marçalo, Michael J. Van Stipdonk, **Theodore A. Corcovilos**, Giel Berden, Jonathan Martens, Jos Oomens, and John K. Gibson. "Revealing Disparate Chemistries of Protactinium and Uranium. Synthesis of the Molecular Uranium Tetroxide Anion, UO_4^-". *Inorganic Chemistry* 56.6 (Mar. 9, 2017), pp. 3686–3694. DOI: 10.1021/acs.inorgchem.7b00144. Cites: 5, JIF: 4.70.

[4] *Michael J. Van Stipdonk*, Cassandra Hanley†, Evan Perez*, Jordan Pestok§, Patricia Mihm*, and **Theodore A. Corcovilos**. "Collision-induced dissociation of uranyl-methoxide and uranyl-ethoxide cations: Formation of UO_2H^+ and uranyl-alkyl product ions". *Rapid Communications in Mass Spectrometry* 30 (Aug. 30, 2016), pp. 1879–1890. DOI: 10.1002/rcm.7668. Cites: 3, JIF: 1.97.

[5] Phuong D. Dau, Daniel Rios, Yu Gong, Maria C. Michelini, Joaquim Marçalo, David K. Shuh, Mejdi Mogammman, Michael J. Van Stipdonk, **Theodore A. Corcovilos**, Jonathan K. Martens, Jos Oomens, Britta Redlich, and *John K. Gibson*. "Synthesis and hydrolysis of uranyl, neptyl and plutonyl gas-phase complexes exhibiting discrete actinide-carbon bonds". *Organometallics* 35.9 (May 9, 2016), pp. 1228–1240. DOI: 10.1021/acs.organomet.6b00079. Cites: 11, JIF:4.05.

[6] *Michael J. Van Stipdonk*, Catherine O'Malley*, Alexandra Plaviak*, Dean Martin†, Jordan Pestok§, Patricia A. Mihm*, Cassandra G. Hanley†, **Theodore A. Corcovilos**, John K. Gibson, and Benjamin J. Bythell. "Dissociation of gas-phase, doubly-charged uranyl-acetone complexes by collisional activation and infrared photodissociation". *International Journal of Mass Spectrometry* 396 (Feb. 25, 2016), pp. 22–34. DOI: 10.1016/j.ijms.2015.12.005. Cites: 5, JIF: 1.83.

[7] Yang Wang†, Xianli Zhang, **Theodore A. Corcovilos**, Aishwarya Kumar†, and *David S. Weiss*. "Coherent addressing of individual neutral atoms in a 3D optical lattice". *Physical Review Letters* 115 (July 24, 2015), p. 043003. DOI: 10.1103/PhysRevLett.115.043003. Cites: 38, JIF: 8.84. Selected as an *Editor's Suggestion* and featured in *Physics* newsletter, July 23, 2015.

[8] Xiao Li, **Theodore A. Corcovilos**, Yang Wang[†], and *David S. Weiss*. "3D Projection Sideband Cooling". *Physical Review Letters* 108.10 (Mar. 9, 2012), p. 103001. DOI: 10.1103/PhysRevLett.108.103001. Cites: 24, JIF: 8.84.

[9] P. M. Duarte[†], R. A. Hart, J. M. Hitchcock[†], **T. A. Corcovilos**, T.-L. Yang[†], A. Reed, and *R. G. Hulet*. "All-optical production of a lithium quantum gas using narrow-line laser cooling". *Physical Review A* 84.6 (Dec. 21, 2011), p. 061406. DOI: 10.1103/PhysRevA.84.061406. Cites: 61, JIF: 2.91. Featured in *Physics* newsletter, Dec. 21, 2011.

[10] ***T. A. Corcovilos***, S. K. Baur[†], J. M. Hitchcock[†], E. J. Mueller, and R. G. Hulet. "Detecting antiferromagnetism of atoms in an optical lattice via optical Bragg scattering". *Physical Review A* 81.1 (Jan. 26, 2010), p. 013415. DOI: 10.1103/PhysRevA.81.013415. Cites: 77, JIF: 2.91.

[11] *Yong P. Chen*, J. Hitchcock[†], D. Dries[†], M. Junker[†], C. Welford[†], S. E. Pollack, **T. A. Corcovilos**, and R. G. Hulet. "Experimental studies of Bose–Einstein condensates in disorder". *Physica D: Nonlinear Phenomena* 238.15 (July 15, 2009), pp. 1321–1325. DOI: 10.1016/j.physd.2009.01.015. Cites: 4, JIF: 1.96.

[12] S. E. Pollack, D. Dries[†], M. Junker[†], Y. P. Chen, **T. A. Corcovilos**, and *R. G. Hulet*. "Extreme tunability of interactions in a ^{7}Li Bose-Einstein condensate". *Physical Review Letters* 102.9 (Mar. 6, 2009), p. 090402. DOI: 10.1103/PhysRevLett.102.090402. Cites: 166, JIF: 8.84. Selected as an *Editor's Suggestion*.

[13] *A. J. Sanders*, A. D. Alexeev, S. W. Allison, V. Antonov, K. A. Bronnikov, J. W. Campbell, M. R. Cates, **T. A. Corcovilos**[*], D. D. Earl, T. Gadfort[*], G. T. Gillies, M. J. Harris, N. I. Kolosnitsyn, M. Yu. Konstantinov, V. N. Melnikov, R. J. Newby[†], R. G. Schunk, and L. L. Smalley. "Project SEE (Satellite Energy Exchange): An international effort to develop a space-based mission for precise measurements of gravitation". *Classical and Quantum Gravity* 17.12 (June 21, 2000), p. 2331. DOI: 10.1088/0264-9381/17/12/305. Cites: 18, JIF: 3.28.

[14] *A. J. Sanders*, A. D. Alexeev, S. W. Allison, K. A. Bronnikov, J. W. Campbell, M. R. Cates, **T. A. Corcovilos**[*], D. D. Earl, T. Gadfort[*], G. T. Gillies, M. J. Harris, N. I. Kolosnitsyn, M. Yu. Konstantinov, V. N. Melnikov, R. J. Newby[†], R. G. Schunk, and L. L. Smalley. "Project SEE (Satellite Energy Exchange): Proposal for space-based gravitational measurements". *Measurement Science and Technology* 10.6 (June 1999), p. 514. DOI: 10.1088/0957-0233/10/6/317. Cites: 23, JIF: 1.69.

III.A.2 Conference proceedings

[1] *R. G. Hulet*, D. Dries[†], M. Junker[†], S. E. Pollack, J. M. Hitchcock[†], Y. P. Chen, **T. A. Corcovilos**, and C. Welford[†]. "Tunable interactions in a Bose-Einstein condensate of lithium: Photoassociation and disorder-induced localization". In: *Proceedings of the XXI International Conference on Atomic Physics*. Ed. by R. Cote, P. L. Gould, M. Rozman, and W. W. Smith. World Scientific, 2009, pp. 150–159. Citation information not available.

[2] *N.-C. Yeh*, C.-T. Chen[†], A. D. Beyer[†], C. R. Hughes[†], **T. A. Corcovilos**[†], and S. I. Lee. "Experimental investigation of the asymmetric spectroscopic characteristics of electron-and hole-doped cuprates". *Physica C: Superconductivity* 408–410 (2004): *Proceedings of the International Conference on Materials and Mechanisms of Superconductivity. High Temperature Superconductors VII*, pp. 792–793. DOI: 10.1016/j.physc.2004.03.133. Cites: 2, JIF: 1.45.

[3] ***T. A. Corcovilos***[†], D. M. Strayer, N. Asplund, and N.-C. Yeh. "Multi-frequency Superconducting Cavity Stabilized Oscillators (SCSO) for quantum-gas measurements and gravitational physics". *Journal of Low Temperature Physics* 134.1-2 (2004): *Proceedings of the Symposium on Quantum Fluids and Solids, QFS2003*, pp. 431–436. DOI: 10.1023/B:JOLT.0000012591.58110.9c. Cites: 1, JIF: 1.04.

[4] *N.-C. Yeh*, C.-T. Chen[†], C. C. Fu[†], Z. Huang[*], **T. A. Corcovilos**[†], R. P. Vasquez, and D. M. Strayer. "Recent developments in the science and technology of superconductivity". In: *Commemorating the Past and Looking Towards the Future. OCPA 2000 - Proceedings of the Third Joint Meeting of Chinese Physicists Worldwide*. Ed. by N-P Chang, K. Young, H. M. Lai, and C-Y Wong. World Scientific, 2002, pp. 72–86. DOI: 10.1142/9789812776785_0008. Citation information not available.

III.A.3 Abstracts published

[1] *Jahnavee Mittal*[*] and **Theodore A. Corcovilos**. "Two-dimensional optical quasicrystal potentials for ultracold atom experiments". *Bulletin of the American Physical Society* 64 (2019): *50th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, E1.142. URL: http://meetings.aps.org/Meeting/DAMOP19/Session/E01.142.

[2] ***Theodore A. Corcovilos***. "Two-dimensional optical quasicrystal potentials for ultracold atom experiments". *Bulletin of the American Physical Society* 63.5 (2018): *49th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, T1.134. URL: http://meetings.aps.org/Meeting/DAMOP18/Session/T01.134.

[3] ***Theodore Corcovilos***. "Progress towards ultracold gases in arbitrary 2D potentials". *Bulletin of the American Physical Society* 61.8 (2016): *47th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, K1.164. URL: http://meetings.aps.org/Meeting/DAMOP16/Session/K1.164.

[4] *Julie M. Gillis*[*], **Theodore A. Corcovilos**, Dean R. Edstrom, Jinhao Ruan, and James K. Santucci. "Optimization of the DPSS Nd:YLF amplifier chain for the 263-nm drive laser at the FAST facility". *Bulletin of the American Physical Society* 61.2 (2016): *APS March Meeting 2016*, F2.7. URL: http://meetings.aps.org/link/BAPS.2016.MAR.F7.2.

[5] *Julie M. Gillis*[*], Sandra M. Osburn, Michael J. Van Stipdonk, and **Theodore A. Corcovilos**. "Modification of a tandem mass-spectrometer for infrared multi-photon dissociation (IRMPD) of gas-phase ions". *Bulletin of the American Physical Society* 60.7 (2015): *46th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, K1.152. URL: http://meetings.aps.org/link/BAPS.2015.DAMOP.K1.152.

[6] *Timothy Ireland*[*], Gage Tiber[*], Robert W. A. Brooke[*], Julie M. Gillis[*], Christopher A. Zaccagnini[*], and **Theodore A. Corcovilos**. "Arduino-based laboratory instruments for an undergraduate laser cooling experiment". *Bulletin of the American Physical Society* 60.7 (2015): *46th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, K1.15. URL: http://meetings.aps.org/link/BAPS.2015.DAMOP.K1.15.

[7] *Aishwarya Kumar*[†], Yang Wang[†], Xianli Zhang, **Theodore A. Corcovilos**, and David S. Weiss. "Single qubit gates on neutral atoms in a 3d optical lattice". *Bulletin of the American Physical Society* 60.7 (2015): *46th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, p. M5.4. URL: http://meetings.aps.org/Meeting/DAMOP15/Session/M5.4.

[8] *Gage Tiber*[*], Partha Basu, and **Theodore A. Corcovilos**. "Inexpensive, pocket-sized LED-based flurometer for undergraduate teaching laboratories and in-the-field chemical detection". *Bulletin of the American Physical Society* 60.7 (2015): *46th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, Q1.142. URL: http://meetings.aps.org/link/BAPS.2015.DAMOP.Q1.142.

[9] *Yang Wang*[†], Aishwarya Kumar[†], Xianli Zhang, **Theodore A. Corcovilos**, and David S. Weiss. "Performance of single qubit gates in an array of neutral atoms". *Bulletin of the American Physical Society* 60.7 (2015): *46th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, K1.76. URL: http://meetings.aps.org/link/BAPS.2015.DAMOP.K1.76.

[10] ***Theodore A. Corcovilos***, Robert W. A. Brooke[*], Julie Gillis[*], Anthony C. Ruggiero[*], Gage D. Tiber[*], and Christopher A. Zaccagnini[*]. "Experimental modelling of material interfaces with ultracold atoms". *Bulletin of the American Physical Society* 59.8 (2014): *45th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, p. D1.18. URL: http://meetings.aps.org/Meeting/DAMOP14/Session/D1.18.

[11] *Yang Wang*[†], Xianli Zhang, **Theodore A. Corcovilos**, and David S. Weiss. "Single qubit gate fidelity for neutral atom qubits in a 3D optical lattice". *Bulletin of the American Physical Society* 59.8 (2014): *45th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, P4.7. URL: http://meetings.aps.org/Meeting/DAMOP14/Session/P4.7.

[12] ***Theodore A. Corcovilos***, Yang Wang†, and David S. Weiss. "Single and pair-wise manipulation of atoms in a 3D optical lattice". *Bulletin of the American Physical Society* 58.6 (2013): *2013 Joint Meeting of the APS Division of Atomic, Molecular and Optical Physics and the CAP Division of Atomic, Molecular and Optical Physics, Canada*, p. D1.37. URL: http://meeting.aps.org/Meeting/DAMOP13/Event/194050.

[13] *Yang Wang*†, **Theodore A. Corcovilos**, and David S. Weiss. "A single qubit gate with single neutral atoms in a 3D optical lattice". *Bulletin of the American Physical Society* 58.6 (2013): *2013 Joint Meeting of the APS Division of Atomic, Molecular and Optical Physics and the CAP Division of Atomic, Molecular and Optical Physics, Canada*, G7.10. URL: http://meeting.aps.org/Meeting/DAMOP13/Event/194234.

[14] ***Theodore A. Corcovilos***, Yang Wang†, Xiao Li, David S. Weiss, and Jungsang Kim. "Single qubit gates in a 3D array of neutral atoms". *Bulletin of the American Physical Society* 57.5 (2012): *43rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, J7.9. URL: http://meetings.aps.org/Meeting/DAMOP12/Event/171635.

[15] ***Theodore A. Corcovilos***, Xiao Li, Yang Wang†, David S. Weiss, Hoon Ryu, Felix Lu, and Jungsang Kim. "Neutral atom quantum computer of Cs atoms in a 5-μm spaced 3D optical lattice". *Bulletin of the American Physical Society* 56.5 (2011): *42nd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, Q1.151. URL: http://meetings.aps.org/Meeting/DAMOP11/Session/Q1.151.

[16] *P. M. Duarte*†, R. Hart, T. L. Yang†, J. M. Hitchcock†, **T. A. Corcovilos**, and R. G. Hulet. "Progress towards realization of antiferromagnetic ordering of cold atoms in an optical lattice". *Bulletin of the American Physical Society* 56.1 (2011): *APS March Meeting 2011*, K1.111. URL: http://meetings.aps.org/link/BAPS.2011.MAR.K1.111.

[17] *R. Hart*, P. M. Duarte†, T. L. Yang†, J. M. Hitchcock†, **T. A. Corcovilos**, and R. G. Hulet. "Demonstration of a ^{6}Li magneto-optical trap using the 2 $S_{1/2} \longrightarrow 3P_{3/2}$ transition". *Bulletin of the American Physical Society* 56.1 (2011): *2011 APS March Meeting*, W45.4. URL: http://meetings.aps.org/link/BAPS.2011.MAR.W45.4.

[18] *Xiao Li*, **Ted Corcovilos**, Yang Wang†, Jungsang Kim, and David S. Weiss. "Addressing single atoms in a 3D optical lattice". *Bulletin of the American Physical Society* 56.5 (2011): *42nd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, p. C3.10. URL: http://meetings.aps.org/Meeting/DAMOP11/Session/C3.10.

[19] *P. M. Duarte*†, **T. A. Corcovilos**, J. M. Hitchcock†, and R. G. Hulet. "Narrow linewidth cooling of ^{6}Li". *Bulletin of the American Physical Society* 55.5 (2010): *41st Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, W5.7. URL: http://meetings.aps.org/link/BAPS.2010.DAMOP.W5.7.

[20] *James M. Hitchcock*†, P. M. Duarte†, **T. A. Corcovilos**, and R. G. Hulet. "Experimental probe of antiferromagnetic ordering in a 3D optical lattice of ^{6}Li". *Bulletin of the American Physical Society* 55.5 (2010): *41st Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, E1.98. URL: http://meetings.aps.org/Meeting/DAMOP10/Session/E1.98.

[21] ***T. A. Corcovilos***, J. M. Hitchcock†, P. M. Duarte†, and R. G. Hulet. "Experimental investigation of the Fermi-Hubbard model in a 3D optical lattice of ^{6}Li atoms". *Bulletin of the American Physical Society* 54.7 (2009): *40th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, S3.1. URL: http://meetings.aps.org/Meeting/DAMOP09/Event/103821.

[22] *P. M. Duarte*†, J. M. Hitchcock†, **T. A. Corcovilos**, and R. G. Hulet. "All-optical methods for cooling ^{6}Li to quantum degeneracy". *Bulletin of the American Physical Society* 54.7 (2009): *40th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, E1.69. URL: http://meetings.aps.org/Meeting/DAMOP09/Session/E1.69.

[23] *J. H. Hitchcock*†, P. M. Duarte†, **T. A. Corcovilos**, and R. G. Hulet. "Experimental probe of antiferromagnetic ordering of ^{6}Li in an optical lattice". *Bulletin of the American Physical Society* 54.7 (2009): *40th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, T1.98. URL: http://meetings.aps.org/Meeting/DAMOP09/Session/T1.98.

[24] *Scott Pollack*, D. Dries †, **T. A. Corcovilos**, and R. G. Hulet. "The role of interactions in disorder induced damping of dipole oscilations of a Bose-Einstein condensate". *Bulletin of the American Physical Society* 54.1 (2009): *2009 APS March Meeting*, J16.1. URL: http://meetings.aps.org/link/BAPS.2009.MAR.J16.1.

[25] ***T. A. Corcovilos***, D. Dries †, J. Hitchcock †, M. Junker †, Y. P. Chen, and R. G. Hulet. "Weakly interacting Bose-Einstein condensate in a disordered optical potential". *Bulletin of the American Physical Society* 53.7 (2008): *39th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, P4.3. URL: http://meetings.aps.org/link/BAPS.2008.DAMOP.P4.3.

[26] ***T. A. Corcovilos*** †, M. E. Turk *, D. M. Strayer, N. N. Asplund, and N.-C. Yeh. "Saturated nucleate pool boiling of oxygen under magnetically-enhanced effective gravity". *Bulletin of the American Physical Society* 53.2 (2008): *2008 APS March Meeting*, K1.131. URL: http://meetings.aps.org/link/BAPS.2008.MAR.K1.131.

[27] *D. Dries* †, Yong P. Chen, J. Hitchcock †, M. Junker †, **T. A. Corcovilos**, C. Welford †, and R. G. Hulet. "Effect of disorder on a Bose-Einstein condensate with tunable interactions". *Bulletin of the American Physical Society* 53.2 (2008): *2008 APS March Meeting*, R1.173. URL: http://meetings.aps.org/link/BAPS.2008.MAR.R1.173.

[28] *J. Hitchcock* †, M. Junker †, D. Dries †, C. Welford †, Y. P. Chen, **T. A. Corcovilos**, and R. G. Hulet. "Rate saturation of photoassociation in a Bose-Einstein condensate". *Bulletin of the American Physical Society* 53.7 (2008): *39th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, B4.1. URL: http://meetings.aps.org/link/BAPS.2008.DAMOP.B4.1.

[29] ***T. A. Corcovilos*** †, D. M. Strayer, N. N. Asplund, and N.-C. Yeh. "Precise equation of state measurements of ^{4}He near the λ-point, using dual-mode Superconducting Cavity Stabilized Oscillators". *Bulletin of the American Physical Society* 50.2 (2005): *2005 APS March Meeting*, p. L33.6. URL: http://meetings.aps.org/link/BAPS.2005.MAR.L33.6.

III.A.4 Unpublished works

[1] *Marshall Perrin*, Joseph Long †, Ewan Douglas, Neil Zimmerman, Anand Sivaramakrishnan, Kyle Douglass, Maciek Grochowicz, and **Ted Corcovilos**. *POPPY (Physical Optics Propagation in PYthon)*. Open source software package. 2017. URL: https://github.com/mperrin/poppy (visited on 07/17/2017).
I contributed code for the description of custom optics for the simulation.

[2] ***Theodore Allen Corcovilos*** †. "Fluid phase thermodynamics. I) Nucleate pool boiling of oxygen under magnetically enhanced gravity and II) Superconducting cavity resonators for high-stability frequency references and precision density measurements of helium-4 gas". Ph.D. Dissertation. Pasadena, CA: California Institute of Technology, 2008. 216 pp. URL: http://resolver.caltech.edu/CaltechETD:etd-07172007-132955.

[3] ***T. A. Corcovilos*** †, M. E. Turk *, D. M. Strayer, N. N. Asplund, and N.-C. Yeh. "Saturated nucleate pool boiling of oxygen under magnetically-enhanced effective gravity" (2007). Whitepaper submitted to NASA, p. 15. arXiv: cond-mat/0702012 [cond-mat].

III.B Grants and awards

III.B.1 Grants received (Active)

None

III.B.2 Grants received (Previous)

[1] Charles E. Kaufman Foundation, "Experimental quantum emulation of two-dimensional topological insulators and Majorana fermions using ultra-cold atoms," (Aug. 2015–Aug. 2017, $150,000). Grant number KA2015-79202. https://kaufman.pittsburghfoundation.org/Awards/Investigator/2015/Corcovilos

[2] InnovationWorks/U.S. Department of Defense Technology Commercialization Consortia grant, "Development of a hand-held device for detecting lead in environmental samples." (May 2016–Aug. 2016, $25,000).

[3] (Internal) Duquesne Faculty Development Fund, "Creation of Bose-Einstein condensates of potassium atoms for the quantum emulation of material junctions," (June 2014–May 2016, $9,808).

[4] (Internal) Charles Henry Leach II Fund, "Mobile automated sampling of the Three Rivers," (Aug. 2015–July 2016, $25,000), as Joint PI with Michael Van Stipdonk (Duquesne, Dept. of Chemistry and Biochemistry). I am responsible for writing 50% of the proposal. I received $5,000 of this grant.

Total funding to date: $189,808.

III.C Scholarly presentations

Undergraduate student coauthors are indicated by *. Graduate student coauthors are indicated by †.

III.C.1 Invited talks

[1] ***Theodore A. Corcovilos***. "Quantum simulation of 2D quasicrystals using ultracold atoms". Penn State University Electro-Optics Center (Freeport, PA), May 2, 2019.

[2] ***Theodore A. Corcovilos***. "Two-dimensional optical quasicrystal potentials for ultracold atom experiments". Radboud University Free Electron Laser group colloquium (Nijmegen, the Netherlands), Dec. 17, 2018.

[3] ***Ted Corcovilos***. "Ultracold atoms in two-dimensional quasicrystal potentials". Washington State University (Pullman, WA), Summer Chemistry Seminar, Aug. 3, 2017.

[4] ***T. A. Corcovilos***. "A Quantum Mechanics Toolbox: Using ultracold atoms in optical potentials to create a quantum computer and to simulate materials". (2 times). Duquesne University (Pittsburgh, PA), Physics Dept. Seminar, Feb. 12, 2013. Bates College (Lewiston, ME) Physics Dept. Seminar, Feb. 28, 2013.

[5] ***T. A. Corcovilos***, X. Li†, Y. Wang, and D. S. Weiss. "Quantum computing with neutral atoms". Bates University (Lewiston, ME) Physics Dept. Seminar, Apr. 1, 2011.

[6] ***T. A. Corcovilos***, S. Baur†, J. M. Hitchcock†, E. Duarte† P. M. Mueller, and R. G. Hulet. "Detection of antiferromagnetic ordering of ultracold atoms in an optical lattice". (3 times). Rice University (Houston, TX) Laboratory for Ultracold Phyiscs Seminar, Oct. 16, 2009. Duke University (Durham, NC) Atomic Physics Seminar, Sept. 2, 2009. National Institute of Standards and Technology (Gaithersburg, MD) Laser Cooling and Trapping Group Seminar, July 15, 2009.

[7] ***T. A. Corcovilos***, J. M. Hitchcock†, A. Signoles*, F. Emaury*, and R. G. Hulet. "Detection of magnetic ordering in a lattice of ultracold atoms". DARPA Optical Lattice Emulator workshop (Lansdowne, VA), May 2009. (National workshop).

[8] ***T. A. Corcovilos***, J. M. Hitchcock†, P. M. Duarte†, and R. G. Hulet. "3D Fermi-Hubbard model at half filling". DARPA Optical Lattice Emulator workshop (Las Vegas, NV), Dec. 17, 2008. (National workshop).

[9] ***T. A. Corcovilos***, J. M. Hitchcock†, P. M. Duarte†, and R. G. Hulet. "Optical lattice simulations of correlated fermions". DARPA Optical Lattice Emulator workshop (State College, PA), June 2008. (National workshop).

[10] ***T. A. Corcovilos***†. "Two experiments in fluid-phase thermodynamics". (4 times). Rice University (Houston, TX) Laboratory for Ultracold Physics Seminar, Aug. 28, 2007. Vanderbilt University (Nashville, TN) Condensed Matter Physics Seminar, Aug. 22, 2007. University of Chicago (Chicago, IL) Atomic Physics Seminar, June 29, 2007. Argonne National Laboratory (Argonne, IL) Materials Science Seminar, June 27, 2007.

III.C.2 Contributed talks, as presenter

[1] ***Theodore A. Corcovilos***. "Building quasicrystal analogs with ultracold atoms". Charles E. Kaufman Foundation Symposium (Pittsburgh, PA), Oct. 27, 2018. (Regional conference).

[2] ***Theodore A. Corcovilos***. "Quasicrystal studies using ultracold atoms". Pittsburgh Quantum Institute (Pittsburgh, PA) Annual Event, Apr. 19, 2018. URL: https://www.pqi.org/pqi2018. (Regional conference).

[3] ***T. A. Corcovilos***. "A proposal for studying interface physics with ultracold atoms". Pittsburgh Quantum Institute (Pittsburgh, PA) Annual Event, Apr. 9, 2014. URL: http://www.pqi.org/events/2014. (Regional conference).

[4] ***Theodore A. Corcovilos***, Yang Wang†, Xiao Li, David S. Weiss, and Jungsang Kim. "Single qubit gates in a 3D array of neutral atoms". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Anaheim, CA), June 6, 2012. URL: http://meetings.aps.org/Meeting/DAMOP12/Event/171635. (National conference).

[5] ***T. A. Corcovilos***, J. M. Hitchcock†, P. M. Duarte†, and R. G. Hulet. "Experimental investigation of the Fermi-Hubbard model in a 3D optical lattice of ^{6}Li atoms". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Charlottesville, VA), May 22, 2009. URL: http://meetings.aps.org/Meeting/DAMOP09/Event/103821. (National conference).

[6] *T. A. Corcovilos*, D. Dries†, J. Hitchcock†, M. Junker†, Y. P. Chen, and R. G. Hulet. "Weakly interacting Bose-Einstein condensate in a disordered optical potential". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (State College, PA), May 30, 2008. URL: http://meetings.aps.org/link/BAPS.2008.DAMOP.P4.3. (National conference).

[7] ***T. A. Corcovilos***†, D. M. Strayer, N. N. Asplund, and N.-C. Yeh. "Precise equation of state measurements of ^{4}He near the λ-point, using dual-mode Superconducting Cavity Stabilized Oscillators". American Physical Society, March Meeting (Los Angeles, CA), Mar. 22, 2005. URL: http://meetings.aps.org/link/BAPS.2005.MAR.L33.6. (National conference).

[8] ***T. A. Corcovilos***†. "Density measurements of helium-4 using superconducting cavity stabilized oscillators". California Institute of Technology/University of Southern California Condensed Matter Symposium (Pasadena, CA), June 2004. (Regional conference).

[9] ***T. A. Corcovilos***†, D. M. Strayer, N. Asplund, and N.-C. Yeh. "Multi-frequency Superconducting Cavity Stabilized Oscillators (scso) for quantum-gas measurements and gravitational physics". Symposium on Quantum Fluids and Solids, QFS2003 (Albuquerque, NM), Aug. 2003. URL: http://dx.doi.org/10.1023/B:JOLT.0000012591.58110.9c. (National conference).

III.C.3 Contributed talks, as coauthor

These are oral presentations for which I made a significant contribution and was listed as a coauthor.

[1] *Jahnavee Mittal** and Theodore A. Corcovilos. "Generating forbidden 10-fold symmetry quasicrystals using an optical system". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 27, 2017. (Local Conference).

[2] *Gage Tiber**, Aria Parangi†, Partha Basu, and **Theodore A. Corcovilos**. "Detection of lead in drinking water using homemade and inexpensive LED-based fluorometer". Duquesne University Undergraduate Research & Scholarship Symposium (Pittsburgh, PA), Apr. 4, 2016. (Local conference).

[3] *Julie M. Gillis**, **Theodore A. Corcovilos**, Dean R. Edstrom, Jinhao Ruan, and James K. Santucci. "Optimization of the DPSS Nd:YLF amplifier chain for the 263-nm drive laser at the FAST facility". American Physical Society, March Meeting (Baltimore, MD), Mar. 15, 2016. URL: http://meetings.aps.org/Meeting/MAR16/Session/F7.2. (National conference).

[4] *Aishwarya Kumar*†, Yang Wang†, Xianli Zhang, **Theodore A. Corcovilos**, and David S. Weiss. "Single qubit gates on neutral atoms in a 3d optical lattice". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Columbus, OH), June 11, 2015. URL: http://meetings.aps.org/Meeting/DAMOP15/Session/M5.4. (National conference).

[5] *Yang Wang*†, Xianli Zhang, **Theodore A. Corcovilos**, and David S. Weiss. "Single qubit gate fidelity for neutral atom qubits in a 3D optical lattice". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Madison, WI), June 5, 2014. URL: http://meetings.aps.org/Meeting/DAMOP14/Session/P4.7. (National conference).

[6] *Xiao Li*, **Ted Corcovilos**, Yang Wang†, Jungsang Kim, and David S. Weiss. "Addressing single atoms in a 3D optical lattice". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Atlanta, GA), June 14, 2011. URL: http://meetings.aps.org/Meeting/DAMOP11/Session/C3.10. (National conference).

[7] *R. Hart*, P. M. Duarte†, T. L. Yang†, J. M. Hitchcock†, **T. A. Corcovilos**, and R. G. Hulet. "Demonstration of a ^{6}Li magneto-optical trap using the 2 $S_{1/2} \longrightarrow 3P_{3/2}$ transition". American Physical Society, March Meeting (Dallas, TX), Mar. 24, 2011. URL: http://meetings.aps.org/link/BAPS.2011.MAR.W45.4. (National conference).

[8] *P. M. Duarte*†, **T. A. Corcovilos**, J. M. Hitchcock†, and R. G. Hulet. "Narrow linewidth cooling of ^{6}Li". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Houston, TX), May 29, 2010. URL: http://meetings.aps.org/link/BAPS.2010.DAMOP.W5.7. (National conference).

[9] *Scott Pollack*, D. Dries†, **T. A. Corcovilos**, and R. G. Hulet. "The role of interactions in disorder induced damping of dipole oscillations of a Bose-Einstein condensate". American Physical Society, March Meeting (Pittsburgh, PA), Mar. 17, 2009. URL: http://meetings.aps.org/link/BAPS.2009.MAR.J16.1. (National conference).

[10] *J. Hitchcock*†, M. Junker†, D. Dries†, C. Welford†, Y. P. Chen, **T. A. Corcovilos**, and R. G. Hulet. "Rate saturation of photoassociation in a Bose-Einstein condensate". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (State College, PA), May 28, 2008. URL: http://meetings.aps.org/link/BAPS.2008.DAMOP.B4.1. (National conference).

III.C.4 Contributed posters

[1] ***Theodore A. Corcovilos***. "Progress towards experimental realization of 5-fold two-dimensional quasicrystals of cold atoms". Gordan Research Conference on Atomic Physics (Newport, RI), June 9, 2019. (National Conference).

[2] *Connor Graça**, Luke Metzler†, **Theodore Corcovilos**, Giel Berden, Jonathan Martens, Jos Oomens, and Michael Van Stipdonk. "Use of IRMPD Spectroscopy to Characterize Derivatives of Aldehydes Considered Emerging Explosive Threat Compounds". 67th American Society of Mass Spectroscopy Conference (Atlanta, GA), June 2, 2019. (National Conference).

[3] *Anna Iacovino**, Irena Tatosian†, Luke Metzler†, **Theodore Corcovilos**, Giel Berden, Jonathan Martens, Jos Oomens, and Michael Van Stipdonk. "Structure and reactivity of anionic uranyl complexes with acetate and halide ligands". 67th American Society of Mass Spectroscopy Conference (Atlanta, GA), June 2, 2019. (National Conference).

[4] *Susan Kline**, Amanda Bubas*, Luke Metzler†, Connor Graça*, **Theodore Corcovilos**, Jonathan Martens, Giel Berden, Jos Oomens, and Michael Van Stipdonk. "Characterization of Precursor and Product Ions from Copper (II) Cationized, N-terminally Modified Glycine-Glycine Using Infrared Multiple-Photon Photodissociation Spectroscopy". 67th American Society of Mass Spectroscopy Conference (Atlanta, GA), June 2, 2019. (National Conference).

[5] *Irena Tatosian*†, Luke Metzler†, Connor Graça*, **Theodore Corcovilos**, Jonathan Martens, Giel Berden, Jos Oomens, and Michael Van Stipdonk. "Measurement of the Asymmetric UO_2^{2+} Stretching Frequency for $[U^{VI}O_2(X)_3]^-$ (X = F, Cl, Br and I) Species Using IRMPD Spectroscopy". 67th American Society of Mass Spectroscopy Conference (Atlanta, GA), June 2, 2019. (National Conference).

[6] *Jahnavee Mittal*[*] and **Theodore A. Corcovilos**. "Progress towards experimental realization of 5-fold two-dimensional quasicrystals of cold atoms". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Milwaukee, WI), May 27, 2019. URL: http://meetings.aps.org/Meeting/DAMOP19/Session/E01.142. (National Conference).

[7] ***Theodore A. Corcovilos***. "Two-dimensional optical quasicrystal potentials for ultracold atom experiments". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Ft. Lauderdale, FL), May 31, 2018. URL: http://meetings.aps.org/Meeting/DAMOP18/Session/T01.134. (National Conference).

[8] *Isaac Davies*[*], Kelsey Morrison[†], **Theodore A. Corcovilos**, and Brian Clowers. "Rates of vibrational energy transfer of gas-phase ions following photon absorption". Washington State University Research Experience for Undergraduates symposium (Pullman, WA), Aug. 4, 2017. (Local Conference).

[9] *Bryonna Beeson*[§], Jenn Mittal[*], Madelyn Hoying[*], Isaac Davies[*], and **Theodore Corcovilos**. "Stabilization of He-Ne laser wavelength through circuit mediated power control". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 28, 2017. (Local Conference).

[10] *Spencer Graves*[*], Gage Tiber[*], and **Theodore A. Corcovilos**. "Stabilization of the readouts for a homemade fluorometer to detect lead in drinking water". (2 times). Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 28, 2017. (Local Conference); Optical Society of America/American Physical Society joint meeting on Frontiers in Optics/Laser Science (Washington, DC), Sept. 17, 2017. (National Conference).

[11] *Madelyn Hoying*[*], Jahnavee Mittal[*], Bryonna Beeson[§], and **Theodore A. Corcovilos**. "Stabilizing a reference laser for a modified Michelson interferometer". (2 times). Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 28, 2017. (Local Conference); Optical Society of America/American Physical Society joint meeting on Frontiers in Optics/Laser Science (Washington, DC), Sept. 17, 2017. (National Conference).

[12] *Jake Kline*[*], Timothy Ireland[*], Gage Tiber[*], and **Theodore A. Corcovilos**. "Electronic and optical refinement of a wavelength meter". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 28, 2017. (Local Conference).

[13] *Jahnavee Mittal*[*], Madelyn Hoying[*], Bryonna Beeson[§], Isaac Davies[*], and **Theodore A. Corcovilos**. "Temperature and wavelength laser stabilization circuit using Arduino microcontroller". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 28, 2017. (Local Conference).

[14] *Ross Aguilar*[*], Spencer Graves[*], and **Theodore A. Corcovilos**. "Development of contaminant setecting mobile application utilizing photographic color analysis". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 27, 2017. (Local Conference).

[15] *Spencer Graves*[*], Ross Aguilar[*], and **Theodore A. Corcovilos**. "Development of a homemade device to measure color concentration in water samples". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 27, 2017. (Local Conference).

[16] *Jahnavee Mittal*[*] and Theodore A. Corcovilos. "Generating forbidden 10-fold symmetry quasicrystals using an optical system". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 27, 2017. (Local Conference).

[17] *Tim Ireland*[*], Isaac Davies[*], Jake Kline[*], Jahnavee Mittal[*], Gage Tiber[*], and **Theodore A. Corcovilos**. "Optical and Electronic Design for a Part-Per-Million Laser Wavelength Meter". Duquesne University Undergraduate Research and Scholarship Symposium (Pittsburgh, PA), Apr. 5, 2017. (Local Conference).

[18] *Jake Kline*[*], Jahnavee Mittal[*], Isaac Davies[*], Tim Ireland[*], Gage Tiber[*], and **Theodore A. Corcovilos**. "Mechanical and Thermal Design for a Part-Per-Million Laser Wavelength Meter". Duquesne University Undergraduate Research and Scholarship Symposium (Pittsburgh, PA), Apr. 5, 2017. (Local Conference).

[19] *Gage Tiber*[*], Aria Parangi[†], Partha Basu, Spencer Graves[*], and **Theodore A. Corcovilos**. "Detection of Lead in Drinking Water Using a Homemade and Inexpensive LED-based Fluorometer". Duquesne University Undergraduate Research and Scholarship Symposium (Pittsburgh, PA), Apr. 5, 2017. (Local Conference).

[20] *Robert W. A. Brooke*[*], Maxwell R. Praniewicz[*], Garrett S. Ott[*], Guilherme Tamassia[*], David E. Schmidt, and **Theodore A. Corcovilos**. "Laser polarization controller for a laser cooling experiment". Optical Society of America & American Physical Society, Division of Laser Science joint meeting on Frontiers in Optics/Laser Science (Rochester, NY), Oct. 18, 2016. (National conference).

[21] *Timothy Ireland*[*], Jacob Kline[*], Gage Tiber[*], and **Theodore A. Corcovilos**. "Towards the implementation of a picometer-resolution digital wavelength meter". (2 times). Optical Society of America & American Physical Society, Division of Laser Science joint meeting on Frontiers in Optics/Laser Science (Rochester, NY), Oct. 18, 2016. (National conference); American Association of Physics Teachers, Western Pennsylvania Sectional Meeting (Erie, PA), Oct. 8, 2016, (Regional Conference).

[22] *Gage Tiber*[*], Samuel Lehr[*], Aria Parangi[†], Louis Sollon[*], Partha Basu, Michael van Stipdonk, and **Theoodore Corcovilos**. "Design of a homemade, portable, and inexpensive environmental sensors". (2 times). Optical Society of America & American Physical Society, Division of Laser Science joint meeting on Frontiers in Optics/Laser Science (Rochester, NY), Oct. 18, 2016. (National conference); University of Pittsburgh, Science 2016 conference (Pittsburgh, PA), Oct. 20, 2016, (Local conference).

[23] *Robert W. A. Brooke*[*], Maxwell R. Praniewicz[*], Garrett S. Ott[*], Guilherme Tamassia[*], David E. Schmidt, and **Theodore A. Corcovilos**. "Laser polarization controller for a laser cooling experiment". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 29, 2016. (Local conference).

[24] *Timothy Ireland*[*], Jacob Kline[*], Gage Tiber[*], and **Theodore A. Corcovilos**. "Design and implementation of optoelectronic sensors in a high-resolution wavelength meter". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 29, 2016. (Local conference).

[25] *Jake Kline*[*], Timothy Ireland[*], Gage Tiber[*], and **Theodore A. Corcovilos**. "Stabilizing and interferometer with proper equipment and a secure cart design". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 29, 2016. (Local conference).

[26] *Gage Tiber*[*], Samuel Lehr[†], Louis Sollon[*], Michael Van Stipdonk, and **Theodore Corcovilos**. "Detection and identification of radioactive elements using a homemade gamma ray spectrometer". (2 times). Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 29, 2016. (Local conference); American Association of Physics Teachers, Western Pennsylvania Section Fall meeting (Erie, PA), Oct. 7, 2016, (Regional conference).

[27] ***Theodore Corcovilos***, Cassandra Hanley[†], Evan Perez[*], Benjamin J. Bythell, and Michael J. Van Stipdonk. "Dissociation of gas-phase, doubly-charged uranyl-acetone and uranyl-dimethyl sulfoxide complexes by collisional activation and infrared photodissociation". 64th American Society of Mass Spectrometry Conference (San Antonio, TX), June 5, 2016. (National conference).

[28] Evan Perez[*], Cassandra Hanley[†], **Theodore A. Corcovilos**, John K. Gibson, Jonathan Martens, Jos Oomens, and *Michael J. Van Stipdonk*. "How does zinc do it? Transformations of alcohols by gas-phase zinc cation complexes". 64th American Society of Mass Spectrometry Conference (San Antonio, TX), June 4, 2016. (National conference).

[29] ***Theodore Corcovilos***. "Progress towards ultracold gases in arbitrary 2D potentials". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Providence, RI), May 25, 2016. URL: http://meetings.aps.org/Meeting/DAMOP16/Session/K1.166. (National conference).

[30] *Aria Parangi*[†], Partha Basu, Gage Tiber[*], and **Theodore A. Corcovilos**. "Detection of Pb(II) in aqueous samples using a turn-on ratiometric chemosensor coupled with a hand-held portable fluorometer". Pennsylvania State University, 19th Annual Environmental Chemistry and Microbiology Student Symposium (University Park, PA), Apr. 9, 2016. (Regional conference).

[31] *Gage Tiber*[*], Aria Parangi[†], Partha Basu, and **Theodore A. Corcovilos**. "Detection of lead in drinking water using homemade and inexpensive LED-based fluorometer". (4 times). American Association of Physics Teachers, Western Pennsylvania Section Spring meeting (Indiana, PA), Apr. 4, 2016. (Regional conference); Duquesne University Undergraduate Research & Scholarship Symposium (Pittsburgh, PA), Apr. 6, 2014, (Local conference); Duquesne University Division of Mission and Identity "Libations and Leads: A Researcher Fair" (Pittsburgh, PA), Apr. 19, 2016, (Local conference); Duquesne University Metals in Biology Symposium (Pittsburgh, PA), Sept. 16, 2016, (Local conference).

[32] *Robert W. A. Brooke*[*], Isaac Davies[*], Julie M. Gillis[*], and **Theodore A. Corcovilos**. "Versatile control instruments for an undergraduate laser cooling experiment". Optical Society of America & American Physical Society, Division of Laser Science joint meeting on Frontiers in Optics/Laser Science (San Jose, CA), Oct. 19, 2015. (National conference).

[33] *Julie M. Gillis*[*], **Theodore A. Corcovilos**, James K. Santucci, and Jinhao Ruan. "Optimization of the DPSS Nd:YLF amplifier chain for the 263-nm drive laser at the FAST facility". (2 times). Optical Society of America & American Physical Society, Division of Laser Science joint meeting on Frontiers in Optics/Laser Science (San Jose, CA), Oct. 19, 2015. (National conference); American Physical Society Conference for Undergraduate Women in Physics (Rutgers, NJ), Jan., 2016. (Regional conference).

[34] *Robert W. A. Brooke*[*], Isaac Davies[*], Timothy Ireland[*], Gage Tiber[*], Julie M. Gillis[*], and **Theodore Corcovilos**. "Arduino-based laboratory instruments for an undergraduate laser cooling experiment". (2 times). Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 31, 2015. (Local conference); University of Pittsburgh *Science 2015* Conference (Pittsburgh, PA), October 8, 2015.

[35] *Gage Tiber*[*], Robert Brooke[*], Timothy Ireland[*], Isaac Davies[*], Julie Gillis[*], Chris Zaccagnini[*], and **Theodore Corcovilos**. "Part per million resolution optical wavemeter". (2 times). Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 31, 2015. (Local conference); University of Pittsburgh *Science 2015* Conference (Pittsburgh, PA), October 8, 2015.

[36] *Gage Tiber*[*], Partha Basu, and **Theodore A. Corcovilos**. "Inexpensive, pocket-sized LED-based fluorometer for undergraduate teaching laboratories and in-the-field chemical detection". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Columbus, OH), June 11, 2015. URL: http://meetings.aps.org/link/BAPS.2015.DAMOP.Q1.142. (National conference).

[37] *Julie M. Gillis*[*], Sandra M. Osburn, Michael J. Van Stipdonk, and **Theodore A. Corcovilos**. "Modification of a tandem mass-spectrometer for infrared multi-photon dissociation (IRMPD) of gas-phase ions". (2 times). American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Columbus, OH), June 10, 2015. URL: http://meetings.aps.org/link/BAPS.2015.DAMOP.K1.152. (National conference); University of Pittsburgh *Science 2015* Conference (Pittsburgh, PA), October 8, 2015.

[38] *Timothy Ireland*[*], Gage Tiber[*], Robert W. A. Brooke[*], Julie M. Gillis[*], Christopher A. Zaccagnini[*], and **Theodore A. Corcovilos**. "Arduino-based laboratory instruments for an undergraduate laser cooling experiment". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Columbus, OH), June 10, 2015. URL: http://meetings.aps.org/link/BAPS.2015.DAMOP.K1.15. (National conference).

[39] *Yang Wang*[†], Aishwarya Kumar[†], Xianli Zhang, **Theodore A. Corcovilos**, and David S. Weiss. "Performance of single qubit gates in an array of neutral atoms". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Columbus, OH), June 10, 2015. URL: http://meetings.aps.org/link/BAPS.2015.DAMOP.K1.76. (National conference).

[40] *Julie Gillis*[*], R. W. A. Brooke[*], C. A. Zaccagnini[*], and **T. A. Corcovilos**. "Saturated absorption laser spectroscopy of potassium-39 vapor". (2 times). Conference for Undergraduate Women in Physics (University Park, PA), Jan. 2015. (Regional conference); Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 25, 2014. (Local conference).

[41] *R. W. A. Brooke*[*], J. M. Gillis[*], C. A. Zaccagnini[*], and **T. A. Corcovilos**. "Electronic systems in an atomic physics lab". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 25, 2014. (Local conference).

[42] *C. A. Zaccagnini*[*], R. W. A. Brooke[*], J. M. Gillis[*], and **T. A. Corcovilos**. "Opto-mechnanical systems for use in an atomic physics lab". Duquesne University Undergraduate Research Program, Summer Research Symposium (Pittsburgh, PA), July 25, 2014. (Local conference).

[43] ***Theodore A. Corcovilos***, Robert W. A. Brooke[*], Julie Gillis[*], Anthony C. Ruggiero[*], Gage D. Tiber[*], and Christopher A. Zaccagnini[*]. "Experimental modelling of material interfaces with ultracold atoms". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Madison, WI), June 3, 2014. URL: http://meetings.aps.org/Meeting/DAMOP14/Session/D1.18. (National conference).

[44] ***Theodore A. Corcovilos***, Yang Wang[†], and David S. Weiss. "Single and pair-wise manipulation of atoms in a 3D optical lattice". Joint Meeting of the American Physical Society Division of Atomic, Molecular et al., June 4, 2013. URL: http://meeting.aps.org/Meeting/DAMOP13/Event/194050. (International conference).

[45] ***Theodore A. Corcovilos***, Xiao Li, Yang Wang[†], David S. Weiss, Hoon Ryu, Felix Lu, and Jungsang Kim. "Neutral atom quantum computer of Cs atoms in a 5-μm spaced 3D optical lattice". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Atlanta, GA), June 16, 2011. URL: http://meetings.aps.org/Meeting/DAMOP11/Session/Q1.151. (National conference).

[46] *P. M. Duarte*[†], R. Hart, T. L. Yang[†], J. M. Hitchcock[†], **T. A. Corcovilos**, and R. G. Hulet. "Progress towards realization of antiferromagnetic ordering of cold atoms in an optical lattice". American Physical Society, March Meeting (Dallas, TX), Mar. 22, 2011. URL: http://meetings.aps.org/link/BAPS.2011.MAR.K1.111. (National conference).

[47] *James M. Hitchcock*[†], P. M. Duarte[†], **T. A. Corcovilos**, and R. G. Hulet. "Experimental probe of antiferromagnetic ordering in a 3D optical lattice of ^{6}Li". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Houston, TX), May 26, 2010. URL: http://meetings.aps.org/Meeting/DAMOP10/Session/E1.98. (National conference).

[48] *P. M. Duarte*[†], J. M. Hitchcock[†], **T. A. Corcovilos**, and R. G. Hulet. "All-optical methods for cooling ^{6}Li to quantum degeneracy". American Physical Society, Division of Atomic, Molecular, and Optical Physics Annual Meeting (Charlottesville, VA), May 20, 2009. URL: http://meetings.aps.org/Meeting/DAMOP09/Session/E1.69. (National conference).

[49] *D. Dries*[†], Yong P. Chen, J. Hitchcock[†], M. Junker[†], **T. A. Corcovilos**, C. Welford[†], and R. G. Hulet. "Effect of disorder on a Bose-Einstein condensate with tunable interactions". American Physical Society, March Meeting (New Orleans, LA), Mar. 12, 2008. URL: http://meetings.aps.org/link/BAPS.2008.MAR.R1.173. (National conference).

[50] ***T. A. Corcovilos***[†], M. E. Turk[*], D. M. Strayer, N. N. Asplund, and N.-C. Yeh. "Saturated nucleate pool boiling of oxygen under magnetically-enhanced effective gravity". American Physical Society, March Meeting (New Orleans, LA), Mar. 11, 2008. URL: http://meetings.aps.org/link/BAPS.2008.MAR.K1.131. (National conference).

III.D Honors and awards for scholarship

Faculty Development Award, Duquesne University, May 2014.

Graduate Student Researcher Fellowship, NASA, 2000–2003.

Chancellor's Citation for Extraordinary Academic Achievement, University of Tennessee - Knoxville, May 1999.

Barry M. Goldwater Scholarship, 1997–1999.

ΦBK honor society, University of Tennessee - Knoxville, 1998.

ΣΠΣ physics honor society, University of Tennessee - Knoxville, 1997.

ΦΚΦ honor society, University of Tennessee - Knoxville, 1997.

College Scholar, University of Tennessee - Knoxville, 1996–1999.

Chancellor's Scholar, University of Tennessee - Knoxville, 1995–1999.

Douglas Roseberry Award for outstanding undergraduate physics student, University of Tennessee - Knoxville (1997, 1998, 1999) — First 3-time recipient.

Mathematics Department scholarship, University of Tennessee - Knoxville, 1996–1998.

Salutatorian, Maryville High School (Maryville, TN), 1995.

Eagle Scout, Boy Scouts of America, 1993.

III.E Other activities related to scholarship

III.E.1 Professional development

Workshops attended:

[1] Center for Teaching Excellence and Division of Academic Affairs workshop: "Preparing an effective case for third-year review, promotion, and tenure" (4/2/2019).

[2] Center for Teaching Excellence and Division of Academic Affairs workshop: "Preparing an effective case for third-year review, promotion, and tenure" (4/7/2015).

[3] Gumberg Library workshop: "Documenting the impact of your scholarship" (10/7/2014).

[4] Center for Teaching Excellence and Division of Academic Affairs workshop: "Preparing an effective case for third-year review, promotion, and tenure" (4/1/2014).

[5] Center for Teaching Excellence workshop: "Publish or perish: Choosing academic publishers" (11/8/2013).

[6] New faculty orientation (8/19/2013).

III.E.2 Media mentions

[1] Kailey Love. "Device detects lead in water". *The Duquesne Duke* (Feb. 11, 2016). URL: http://www.duqsm.com/device-detects-lead-in-water/.

[2] Aaron Auperlee. "Lead crisis in Flint, Mich., raises question: What's in our water?" *Pittsburgh Tribune Review* (Jan. 21, 2016). URL: http://triblive.com/news/allegheny/9830746-74/lead-flint-billion.

[3] Kaye Burnet. "New research lab coming to Fisher Hall". *The Duquesne Duke* (Jan. 23, 2014). URL: http://www.duqsm.com/new-research-lab-coming-in-fisher-hall/.

IV Service

IV.A University, school, or department Service

IV.A.1 University service

At Duquesne University:

Office of Research, Faculty Development Fund award committee member (2015, 2019).

Faculty Senate Assembly representative (2016–present).

Center for Teaching Excellence, Creative Teaching Awards committee member (2016, 2017).

Center for Teaching Excellence, Teacher-Scholar Nexus workshop panelist (2017).

Center for Teaching Excellence and Division of Academic Affairs, Promotion and Tenure Workshop, volunteer for case study (2016).

Division of Academic Affairs, STEM education working group member (2015).

Office of Research, Research computing working group member (2015).

Libermann Hall Foucault Pendulum installation, faculty mentor (2014–2015).

IV.A.2 School service

At Duquesne University, Bayer School of Natural and Environmental Sciences:

Dean review committee member (2017).

Bayer School Faculty Excellence Awards committee (2016).

Pennsylvania Junior Academy of Science, Regional Science Fair committee, alternate member (2016)

Academic Integrity violation panel (2015).

Assistant dean search committee member (2015).

Summer Undergraduate Research Symposium, plenary session moderator (2016, 2015, 2014).

Mitch Johnson Student Service Award, award committee member (2015).

Undergraduate Research Program Ethics Forum, moderator (2014).

Undergraduate Research Program Ethics Forum, group mentor (2014).

At The Pennsylvania State University (University Park Campus), Eberly College of Science:

Climate and diversity committee, member (2012–2013).

Postdoctoral affairs subcommittee, member (2012–2013).

IV.A.3 Departmental service

At Duquesne University, Department of Physics:

Departmental chairperson review committee, co-chair (2016–2017)

Bayer School Scholarship committee for physics (2016, 2017)

Computer committee (2015–present)

Secured donation of a $5,000 video conferencing system for the department from the Pittsburgh Quantum Institute (2015).

Hiring committee for Director of Instructional Laboratories, member (2013).

At the California Institute of Technology, Department of Physics:

Graduate student seminar chairperson (2002).

At the University of Tennessee - Knoxville, Department of Physics and Astronomy:

Curriculum committee, member (1998–1999).

IV.B Community service

Pittsburgh Water & Sewer Authority, Academics Green Stormwater Infrastructure Convergence, member (2015)

IV.C Professional

IV.C.1 Committees

Pittsburgh Quantum Institute, postdoctoral advisory committee member (2017–present).

Pittsburgh Quantum Institute, executive committee member (2014–present).

Pittsburgh Quantum Institute, annual symposium event, program committee (2014, 2015, 2016, 2017, 2018), session chair (2014, 2018)

IV.C.2 Other professional services

Applied Optics, reviewer (2018–present).

American Journal of Physics, reviewer (2015–present).

Intel International Science and Engineering Fair, Grand Awards judge (2015).

Pennsylvania Junior Academy of Science, regional competition judge (2014).