

Curriculum Vita
Tatiana Erukhimova

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Professional Preparation

- M.S. in Physics with Honors, 1987, Nizhny Novgorod State University
- Ph.D. Physics, 1999, Institute of Applied Physics, Russian Academy of Sciences

Academic Appointment History

- 2019 - present: Instructional Professor, Department of Physics & Astronomy, TAMU
- 2016 - 2019: Instructional Associate Professor & Outreach Coordinator, Department of Physics & Astronomy, TAMU
- 2010 – 2016: Senior Lecturer & Outreach Coordinator, Department of Physics & Astronomy, TAMU
- 2006-2010: Lecturer and Outreach Coordinator, Dept. of Physics, TAMU
- 2002-2006: Assistant Research Scientist, Dept. of Atmospheric Sciences, TAMU
- 2001-2002: Postdoctoral Research Associate, Dept. of Atmospheric Sciences, TAMU
- 1998-2000: Research Scientist, Institute of Applied Physics, Russian Academy of Sciences

Awards and Recognitions

- David Halliday and Robert Resnick Award for Excellence in Undergraduate Physics Teaching, AAPT, 2024
- Fellow, American Association for the Advancement of Science, 2023
- Wells Fargo Honors Faculty Mentor Award, 2024
- American Physical Society's Dwight Nicholson Medal for Outreach, 2023
- Fellow, American Association of Physics Teachers, 2024
- Homer L. Dodge Citation for Distinguished Service to American Association for Physics Teachers, 2024
- Marsha L. '69 and Ralph F. Schilling '68 Chair, 2022
- University Professor for Undergraduate Teaching Excellence, 2021
- American Physical Society Fellow, 2019
- Presidential Professor for Teaching Excellence, 2017
- Distinguished Achievement University-Level Award in Outreach from the Association of Former Students, 2019
- TAMU Fish Camp Namesake, 2019
- Distinguished Achievement University-Level Award in Teaching from the Association of Former Students, 2012
- Distinguished Achievement College-Level Award in Teaching from the Association of Former Students: 2009, 2015
- Sigma Xi's Outstanding Science Communicator Award, 2014
- John E. Trott, Jr. Award in Student Recruiting, 2013
- Texas A&M University System Student Led Award for Teaching Excellence (SLATE): 2011, 2009, and 2008

Recent public appearances

- CBS Morning Show, 2023: <https://www.cbsnews.com/video/viral-tiktok-physics-professor-tatiana-erukhimova-on-the-magic-of-science/>
- NPR, 2024: <https://www.npr.org/2024/02/05/1228878552/dr-tatiana-physics-professor-tiktok-profile-youtube?fbclid=IwAR1guCL3iyfyRXMc5iv2MaGNN6laPVKf7zQD5xfnq6LZiof0L8UbwVeU7gM>
- CBS News feature story, March 15, 2023: "Physics professor's viral videos help inspire women to pursue science," <https://www.cbsnews.com/news/physics-professor-dr-tatiana-erukhimova-career-science/>
- Feature story at CBS Evening News with Norah O'Donnell, October 28, 2023 <https://www.youtube.com/watch?v=pbJoORgCq4Q>
- Appearance on Jennifer Hudson Show: <https://jenniferhudsonshow.com/2023/01/03/meet-texas-a-and-m-physics-professor-dr-tatiana-erukhimova/> See also "Texas A&M physicist featured on Jennifer Hudson Show", Texas A&M Today, January 3, 2023. <https://today.tamu.edu/2023/01/03/texas-am-physicist-featured-on-jennifer-hudson-show/>
- Feature film at KHOU 11, October 9, 2023: <https://www.youtube.com/watch?v=4YVbJtvkvkE>
- Interview in Insite Magazine, August 1, 2023: <https://insitebrazosvalley.com/community/texas-a-m/igniting-a-passion-for-physics/>
- Cover story in Maroon Magazine, spring 2023: <https://www.txamfoundation.com/maroon/spring-2023/physics-for-all.aspx>
- Interview with Degrees of Science channel, Brady Taylor, Chief Meteorologist at KWTX-TV in Waco, August 15, 2023: <https://www.youtube.com/watch?v=ix7iZaClc3A>
- Filmed a number of physics demonstrations at KAMU which they have been running as commercials on cable channels.
- ABC News appearance, Fall 2022: <https://www.goodmorningamerica.com/living/video/passionate-professors-physics-demonstrations-viral-93442806>
- APS News, April 2024: <https://aps.org/publications/apsnews/202404/liquid-nitrogen.cfm>
- APS FOEP, March 2024: https://higherlogicdownload.s3.amazonaws.com/APS/b78b34eb-fd8b-4522-bbc5-d1874657d1bb/UploadedImages/FOEP_newsletter_March2024.pdf

Grants to support pedagogical or curricular innovation:

- Principal Investigator, The Role of Co-curricular Service and Outreach Activities on Persistence and Success for Undergraduate Physics Students, NSF, 2022-2025, \$184,742
- Faculty Lead, Digital Design for Student Success (D2S2), THECB, 2022, \$200,000
- Principal Investigator, "Creating Physics Concept Videos", TAMU, 2021, \$20,000
- Principal Investigator, "STEM Student Integration and Identity through Discipline-based Outreach Activities", TAMU, 2020, \$5,000
- Principal Investigator, "Online Video Resource for Recitations in the Introductory Electricity & Magnetism class", TAMU, 2018-2019, \$10,000. In the fall of 2019 I have recorded [53 videos](#) solving E&M problems. These videos were supplemental, no credit was given for watching them. 900 students took this class in the fall. The videos were viewed 27,529 times by the students after the first semester only.
- Principal Investigator, Student Success Faculty Fellow: "Early Intervention and Engagement in

Freshman Physics Classes", TAMU, 2017-2018, \$10,000. I used this money to build peer-mentor communities in my PHYS 218 and 208 classes. I mentored 9 upper-level physics majors who ran peer-learning community meetings three times a week in spring and fall of 2018.

- Principal Investigator (with William Bassichis): "Calculus Based Physics Courses Enhanced with Technology", TAMU, 2016 - 2017, \$75,000 to create online modules providing extra instruction required by students having difficulty with PHYS 218 and PHYS 208. We created 90 videos: 49 videos for PHYS 218 (Mechanics) and 41 videos for PHYS 208 (E&M).
- Principal Investigator: American Physical Society (APS) grant for outreach innovation, 2015-2018, \$20,000. I mentored Texas A&M undergraduate and graduate students to create 21 videos that bring the excitement of the physics hands-on demonstrations to high-school students and the public in an entertaining way. The students wrote the scripts and starred in the videos. All videos are available at <http://realphysicslive.com/>
- Principal Investigator: Simons Foundation/Science Festival Alliance Just Add Science grant, 2015-2016, \$10,000. This grant allowed us to "meet people where they are." I mentor student teams that bring exciting science experiences to existing events and venues where people are already gathered (e.g. First Fridays in Downtown Bryan and Texas A&M football games).
- Principal Investigator: Tier One Program grant 2012-2015: \$300,000 Title: "DEEP: Discover, Explore, and Enjoy Physics & Engineering via High Impact Educational Experiences in Aggieland and Beyond". In this program I mentor teams of graduate and undergraduate students who design and build innovative physics experiments and demonstrations. They present them at the Physics & Engineering Festival every spring and at the Physics Shows throughout the year. The demonstrations are also used in regular physics courses to enhance the curriculum. The DEEP program enhances undergraduate and graduate students' learning and research experiences by incorporating active learning, service-oriented learning, and teamwork activities. It builds leadership skills of the graduate students who serve as team leaders See more at the DEEP website: <http://physics.tamu.edu/outreach/deep/>
- Service-Learning Faculty Fellow for 2013: \$2,500.
- Flipping your course for 2013-2014: \$2,000. Funds were used to record 15 pre-lecture videos for PHYS 218 and 13 pre-lecture videos for PHYS 208 (with Bill Bassichis). These videos are posted on the course websites.
- Mentored ten undergraduate students on physics education research projects. Eight of them presented their research at the American Association of Physics Teachers National meetings.

Recent research on physics education:

- J. D. Perry, A. Wang, C. Garrett, M. Dew, M. Head, A. Belyanin, B. Dutta, and T. Erukhimova, Mitchell Institute Physics Enhancement Program - Supporting the Development of Out-of-Field, In-Service Teachers of High School Physics, *Phys. Teach.* 62, 480–483 (2024) <https://doi.org/10.1119/5.0142715>
- J. D. Perry, T. L. Erukhimova, C. Garrett, T. Sauncy, J. P. Donaldson, S. White, J. Tyler, and R. L. Ivie, Exploring Impacts of Outreach on a National Sample of Undergraduate Physics Students, 2024 Physics Education Research Conference (PERC) Proceedings, pp. 318-323, doi:[10.1119/perc.2024.pr.Perry](https://doi.org/10.1119/perc.2024.pr.Perry)
- C. Garrett, T. Erukhimova, J. Perry, and J. P. Donaldson, Broadening Student Learning through Informal Physics Programs, 2023 Physics Education Research Conference (PERC) Proceedings, pp. 108-113, doi:[10.1119/perc.2023.pr.Garrett](https://doi.org/10.1119/perc.2023.pr.Garrett)

- C. Garrett, A. Wang, J. Perry, and T. Erukhimova, Improving Out-of-Field Preparation of High School Physics Teachers, *J. Undergrad. Rep. Phys.* 33, 100001 (2023), <https://doi.org/10.1063/10.0022465>
- Jessi Randolph, Jonathan Perry, Jonan Phillip Donaldson, Callie Rethman, and Tatiana Erukhimova, Female physics students gain from facilitating informal physics programs, *Phys. Rev. Phys. Educ. Res.* 18, 020123 (2022). <https://journals.aps.org/prper/abstract/10.1103/PhysRevPhysEducRes.18.020123>
- C. Rethman, J. Perry, J.P. Donaldson, D. Choi, and T. Erukhimova, Impact of informal physics programs on university student development: Creating a physicist, *Phys. Rev. Phys. Educ. Res.* 17, 020110 (2021). <https://journals.aps.org/prper/abstract/10.1103/PhysRevPhysEducRes.17.020110>
- M. Dew, J. Perry, L. Ford, W. Bassichis, and T. Erukhimova, Gendered performance differences in introductory physics: A study from a large land-grant university, *Phys. Rev. Phys. Educ. Res.* 17, 010106 (2021). <https://journals.aps.org/prper/abstract/10.1103/PhysRevPhysEducRes.17.010106>
- M. Dew, J. Perry, L. Ford, D. Nodurft, and T. Erukhimova, Student responses to changes in introductory physics learning due to COVID-19 pandemic, *The Physics Teacher*, 59(3), 162--165, Mar 2021; <https://doi.org/10.1119/5.0027816>
- Anne Wang, Jonathan Perry, Matthew Dew, Tatiana Erukhimova, Training the trainer: Professional Development for High School Physics Teachers with Low Physics Background, submitted, <https://arxiv.org/abs/2106.00816>
- A. Ozmetin, M. Dew, T. Erukhimova, and J. Perry, Does Instructor Gender Matter for Student Performance in Introductory Physics?, 2021 PERC Proceedings [Virtual Conference, August 4-5, 2021], edited by M. B. Bennett, B. W. Frank, and R. E. Vieyra, doi:[10.1119/perc.2021.pr.Ozmetin](https://doi.org/10.1119/perc.2021.pr.Ozmetin).
- J. Perry, J. P. Donaldson, and T. Erukhimova, Comparing the impact of informal physics program on undergraduate versus graduate student facilitators, 2021 PERC Proceedings [Virtual Conference, August 4-5, 2021], edited by M. B. Bennett, B. W. Frank, and R. E. Vieyra, doi:[10.1119/perc.2021.pr.Perry](https://doi.org/10.1119/perc.2021.pr.Perry).
- J. Randolph, E. Hay, C. Rethman, T. Erukhimova, J. P. Donaldson, and J. Perry, Impact of informal physics programs on female university students, 2021 PERC Proceedings [Virtual Conference, August 4-5, 2021], edited by M. B. Bennett, B. W. Frank, and R. E. Vieyra, doi:[10.1119/perc.2021.pr.Randolph](https://doi.org/10.1119/perc.2021.pr.Randolph).
- J. Perry, T. Erukhimova, and W. Bassichis, New video resource for calculus-based introductory physics, design, and assessment. I. Electricity and magnetism, *American Journal of Physics* 87, 335 (2019), <https://doi.org/10.1119/1.5095140>

Other professional interests:

- Atmospheric wave dynamics, minor constituents, ozone layer
- Numerical modeling of atmospheric transport and mixing

Textbook:

Gerald R. North and Tatiana L. Erukhimova, "Atmospheric Thermodynamics. Elementary Physics and Chemistry". Cambridge University Press, 2009

Classes taught:

- PHYS 208, 207: Electricity and Magnetism, 2007 - 2023, 100+ students per semester
- PHYS 218, 206: Mechanics, 2006 - 2024, 100+ students per semester

- PHYS 285, 485, 491, 685: directed studies and independent research, every year
- ATMO 335: Atmospheric Thermodynamics, Spring 2003 - 2005
- LEEP, Preparatory program, Summer 2008 - 2012
- Preparatory program for POSSE students, Summer 2015 – 2023

Certified in effective college instruction by the Association of College and University Educators (ACUE) and the American Council on Education (ACE), May 2021.

Outreach/Service:

National:

- Member-at-Large, American Physical Society Forum on Outreach and Engaging the Public (FOEP), 2024-2026
- Member, AAPT Committee on Teacher Preparation, 2024-2027
- Chair, AAPT Committee on Science Education for the Public, 2020
- Session organizer at national AAPT meetings, 2019-2023

Texas A&M:

- Organizer of the [Physics and Engineering Festival](#) (every spring since 2007). Over 6000 visitors every year. The Festival is a member of the Science Festivals Alliance.
- Organizer of the [DEEP](#) program for TAMU students to enhance the learning and research experiences of undergraduate and graduate students through their hands-on extracurricular activities, peer learning in small teams, and participation in high-profile outreach activities.
- Creator of short physics video (with Dawson Nodurft, Ryan Carmichael, and Allison McGrow).
- Organizer of numerous outreach programs at TAMU: [Physics Show](#), [Just Add Science](#), [RealPhysicsLive](#), Game Day Physics, etc. Performed dozens of physics shows per year at local schools and libraries, for summer camps, student societies, College of Science and University-wide outreach and recruitment events. Over 35,000 people attended the Physics Show since 2007 when it started.
- Organizer and lecturer of the Mitchell Institute Physics Enhancement Program (MIPEP) for high school physics teachers, 2012-2024. <https://mitchell.tamu.edu/outreach/mipep/>
- Member, College of Arts and Sciences Dean's Faculty Advisory Council - APT, 2022-2024
- Member, College of Science Dean's Faculty Advisory Council, 2020-2021
- Member, Virtual Teaching Assistant Institute Project Team, summer 2020.
- Member, Texas A&M Undergraduate Student Success Initiative Taskforce, Fall 2018
- Member, Texas A&M University Teaching and Transformational Learning Technologies Committee, 2017-2018
- Member, Transformational Teaching and Learning Conference Program Committee, 2017-2024
- Course Coordinator for PHYS 206 and PHYS 207, 2017 – current
- Member, Presidential Transformational Teaching Grant Advisory Committee, 2019-2020
- Member, Center for Teaching Excellence Faculty and Student Advisory Board, 2013-2015
- College of Science Dean Search Committee, 2018-2019
- Organizer, Texas Section of the AAPT Meeting, Fall 2014
- Organizer/presenter of the inaugural Fall 2014 Graduate Student Professional Development in Teaching seminar series
- Organizer of the Big Physics Day: satellite event of the USA Science and Engineering Festival, fall 2010.

Selected Recent Presentations:

1. Invited speaker: American Physical Society Annual Meeting, March 5, 2024, Minneapolis, MI.
2. Keynote speaker for the 32nd Annual Susan M. Arseven '75 WISE Conference, February 24, 2024
3. Invited speaker: American Association of Physics Teachers Winter Meeting, Jan. 9, 2024, New Orleans, LA.
4. Featured speaker: Conference for the Advancement of Science Teaching (CAST), November 10, 2023. "Let your students teach: Making an intimidating subject enjoyable."
5. [Public lecture at the Victoria College Lyceum](#), October 17, 2023.
6. Colloquium speaker, University of Toronto, Department of Physics. October 12, 2023.
7. American Association of Physics Teachers Summer Meeting, Sacramento, CA. July 17: Dawson Nodurft, Matthew Lee, Jonathan Perry, Kevin Black, Carlee Garrett, and Tatiana Erukhimova, "Impacts of Supplemental Materials on Student Learning", contributed talk presented by Dawson Nodurft.
8. Physics Education Research Conference, Sacramento, CA. July 20: Carlee Garrett, Jonathan Perry, Jonan Philip Donaldson, and Tatiana Erukhimova, "Broadening Student Learning through Informal Physics Programs", poster presented by Jonathan Perry.
9. American Physical Society April Meeting, 2023, Minneapolis, MN, April 18. Tatiana Erukhimova, Jonathan Perry, Jonan Donaldson, Jessi Randolph, Carlee Garrett, and Callie Rethman, "Impact of informal physics programs on university students who facilitate them." Contributed oral presentation.
10. Keynote speaker: 2023 Life Sciences Recruitment Symposium, February 3, 2023.
11. American Association of Physics Teachers Winter Meeting, Portland, OR. Jan. 17: Carlee Garrett and Tatiana Erukhimova, "Utilizing the art of demonstration at an undergraduate level", contributed talk presented by Carlee Garrett; Jan. 15: Brant Conway, Dawson Nodurft, Jonathan Perry, Michael Kordell, Carlee Garrett, and Tatiana Erukhimova, "Supplemental resources impact on student outcomes in introductory E&M", poster presented by Brant Conway.
12. Plenary speaker: 2022 TAMU Transformational Teaching and Learning Conference, May 2022. College Station, TX. "Staying the course."
13. Colloquium speaker, Texas State University, Department of Physics, November 17, 2021.
14. Invited speaker: AAPT Virtual Summer Meeting 2020: "Broadening Participation in STEM through Science Cafes and Festivals."
15. Invited speaker: AAPT Winter Meeting 2020, Orlando, FL: "Student-Centered Physics Outreach at Texas A&M."
16. Plenary speaker: 2018 TAMU Transformational Teaching and Learning Conference, April 2018. College Station, TX. "It's not business, it's personal. Teaching large classes, one student at a time."
17. Plenary speaker: 2018 Joint Spring Meeting of the Texas Sections of APS, AAPT, and Zone 13 SPS. March 2018, Stephenville, TX
18. Invited speaker: APS March Meeting 2018, Los Angeles, CA.
19. Invited speaker, TAMU Pedagogy Forum, Fall 2016, Spring 2017
20. TEDxTAMU, April 2016: ["Physics as a Street Art"](#).

Membership in professional societies

- American Physical Society, member
- American Geophysical Union, member
- American Association of Physics Teachers, member
- American Association for Advancement of Science (AAAS), member
- The Honor Society of Phi Kappa Phi, member

