Lauren Tompkins

Associate Professor of Physics, Stanford University

Employment

2021– **Associate Professor**, *Department of Physics*, Stanford University.

2014–2021 **Assistant Professor**, *Department of Physics*, Stanford University.

2011–2014 **Postdoctoral Scholar**, *Enrico Fermi Institute*, University of Chicago.

Education

2005–2011 **University of California at Berkeley**, *Ph.D. Physics - May 2011; M.A. Physics - May 2008.*
Thesis - *A measurement the inelastic cross section in pp collisions at $\sqrt(s) = 7$ TeV with the ATLAS detector*

2004–2005 **Fulbright**, *Laboratoire de l'Accelérateur Linéaire, Orsay, France.*

2000–2004 **University of California at Berkeley**, *B.A. in Physics with High Honors; B.A. in Mathematics.*
Distinction in General Scholarship

Selected Awards and Honors

2024 US ATLAS Equity Diversity and Inclusion Award

2021 Faculty Women's Forum Inspiring Early Academic Career Award

2019 UC Berkeley Physics and Astronomy Commencement Speaker

2016–2021 NSF CAREER Award

2014–2017 Stanford Terman Fellow

2013 Enrico Fermi Institute Compton Lecturer

2005–2008 National Science Foundation Graduate Research Fellowship

2004–2005 Fulbright Scholar - France

Appointments and Elected Positions

2025–present **LDMX DAQ-Subsystem Integration Coordiantor**, *Lead LDMX DAQ integration.*

2023–present **Trigger Scintillator Coordinator**, *Lead LDMX Trigger Scintillator design and installation.*

2017–2019 **FTK Project Leader**, *Project leader for ATLAS FastTracker trigger upgrade.*

2016–2017 **FTK Technical Coordinator**, *Technical lead for ATLAS FastTracker trigger upgrade.*

2014–2019 **Data Formatter Lead**, *Responsible for production, installation and commissioning of FTK Data Formatter system–a 32-board multi-gigabit, FPGA-based data processing electronics system.*

Professional Service

General

2020–2023 Elected Member-At-Large of the American Physical Society Division of Particles and Fields Executive Board

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2016–2019	Elected US Atlas Management Advisory Committee Member, Chair in 20180–2019
2018	Lecturer at Hadron Collider Physics Summer School on Trigger and Data Acquisition Systems
2017–2018	Elected member of the US LHC User's Association Executive Committee
2016–Present	Reviewer for NSF proposals, IEEE papers, Nature Reports, Nuclear Instruments and Methods Papers
2015–2016	Member of SLAC KA-25 detector R&D advisory panel

Equity and Inclusion

2016–2022	Coordinate CERN side of CSU NUPAC CERN summer student program. Provide mentors and be point of contact for 10 students from CSU system.
2015–2019	Stanford Physics Department Summer Research Programming Advising. Initiated effort to include professional development and equity and inclusion related material into summer research program.
2020	Chair of DPF Ethics Task Force. Wrote first code of conduct for DPF.
2017–2019	ATLAS Experiment Diversity and Inclusion Contact. One of four collaboration contact points on matters of Diversity and Inclusion.
2017–2018	Chair of US ATLAS Ad hoc Committee on Diversity and Inclusion. Responsible for developing a strategic plan for Diversity and Inclusion for US ATLAS program.

Selected Publications

As a member of the ATLAS experiment, I am the author of over 1550 peer-reviewed papers as of August 1, 2026. Papers are published with the entire collaboration author list in alphabetical order. Below are listed only papers that myself or members of my group have played a significant role in the analysis. In prep indicates that the internal collaboration review process has begun.

- Chance LaVoie, Qi Bin Lei, Rocky Bala Garg and **Lauren Tompkins**. *Exploring new directions in enhancing the ACTS parameter optimization suite*. Aug 2026. To be published in the Proceedings of Science for ACAT 2025
- Elizabeth Berzin, Lene Kristian Bryngemark, Robert Craig Group, Joesph Kaminski, Timothy Nelson, Rory O'Dwyer, Jessica Pascadlo, Emrys Peets, Benjamin Reese, **Lauren Tompkins**, Kieran Wall, Andrew Whitbeck. *Measurement of the LCLS-II dark current using the LDMX trigger scintillator prototype*. NIM A 171709 Vol. 1091 (2026)
- ATLAS Collaboration. *Search for new physics in final states with semivisible jets or anomalous signatures using the ATLAS detector*. Phys. Rev. D 112, 012021 (2025)
- HPS Collaboration. *First displaced vertex search for electroproduced dark-sector strongly interacting massive particles by the HPS experiment*. Phys. Rev. D 113, 032019
- LDMX Collaboration. *LDMX – The Light Dark Matter eXperiment*. Design Report arxiv:2508.11833)
- LDMX Collaboration. *Sensitivity of an early dark matter search using the electromagnetic calorimeter as a target for the Light Dark Matter eXperiment*. JHEP 12 (2025) 150

- Akar S, Elashri M, Garg RB, Kaufman E, Peters M, Schreiner H, Sokoloff M, Tepe W, **Tompkins L**. *Advances in developing deep neural networks for finding primary vertices in proton-proton collisions at the LHC*. Proceedings of Conference on Computing High Energy Physics. 2023 September 21.
- The LDMX Collaboration. *Photon-rejection Power of the Light Dark Matter eXperiment in an 8 GeV Beam*. Journal of high energy physics : JHEP. 2023 August 29
- Akar S, Elashri M, Garg RB, Kaufman E, Peters M, Schreiner H, Sokoloff M, Tepe W, **Tompkins L**. *Advances in developing deep neural networks for finding primary vertices in proton-proton collisions at the LHC*. Proceedings of Conference on Computing High Energy Physics. 2023 September 21.
- ATLAS Collaboration, *Search for dark photons from Higgs boson decays via ZH production with a photon plus missing transverse momentum signature from pp collisions at $\sqrt{s}$= 13 TeV with the ATLAS detector*. JHEP 07 (2023) 133
- Xiaocong Ai, Corentin Allaire, Noemi Calace, Angela Czirkos, Markus Elsing, Irina Ene, Ralf Farkas, Louis-Guillaume Gagnon, Rocky Garg, Paul Gessinger, Hadrien Grasland, Heather M. Gray, Christian Gumpert, Julia Hrdinka, Benjamin Huth, Moritz Kiehn, Fabian Klimpel, Bernadette Kolbinger, Attila Krasznahorkay, Robert Langenberg, Charles Leggett, Georgiana Mania, Edward Moyse, Joana Niermann, Joseph D. Osborn, David Rousseau, Andreas Salzburger, Bastian Schlag, **Lauren Tompkins**, Tomohiro Yamazaki, Beomki Yeo and Jin Zhang. *A Common Tracking Software Project*. Computing and Software for Big Science volume 6, Article number: 8 (2022)
- Rocky Bala Garg, Heather Gray, Elyssa Hofgard, **Lauren Tompkins**, *Exploration of different parameter optimization algorithms within the context of ACTS software framework*. Proceedings for Connecting the Dots 2022. arXiv:2211.00764
- The HPS Collaboration. *The Heavy Photon Search Experiment*. Submitted to the Proceedings of the US Community Study on the Future of Particle Physics (Snowmass 2021).
- The LDMX Collaboration. *Current Status and Future Prospects for the Light Dark Matter eXperiment* Submitted to the Proceedings of the US Community Study on the Future of Particle Physics (Snowmass 2021).
- The ATLAS Collaboration. *Search for Dark Matter Produced in Association with a Dark Higgs Boson Decaying to WW or ZZ in pp Collisions at $\sqrt{s}$ =13 TeV with the ATLAS Detector in Hadronic Final States*. arXiv:2010.06548. Phys. Rev. Lett. 126 (2021) 121802
- The ATLAS Collaboration. *Measurements of Higgs Bosons Decaying to Bottom Quarks from Vector Boson Fusion Production with the ATLAS Experiment at $\sqrt{s} = 13$ TeV*. arXiv:2011.08280. Eur. Phys. J. C. 81 (2021) 537
- The ATLAS Collaboration. *The ATLAS Fast TracKer (FTK) System*. arXiv:2101.05078. JINST 16 (2021) P07006.
- The ATLAS Collaboration. *Combined measurements of Higgs boson production and decay using up to 80 fb^{-1} of proton-proton collision data at $\sqrt{s} = 13$ TeV collected with the ATLAS experiment*. Phys. Rev. D 101, 012002 (2020)
- The ATLAS Collaboration. *Measuring the properties of $g \to b\bar{b}$ at small opening angles in pp collisions with the ATLAS detector at $\sqrt{s} = 13$ TeV*. Phys. Rev. D 99, 052004 (2019)
- The ATLAS Collaboration. *Identification of boosted Higgs bosons decaying into b-quark pairs with the ATLAS detector at 13 TeV*. Eur. Phys. J. C 79 (2019) 836
- The ATLAS Collaboration. *ATLAS b-jet identification performance and efficiency measurement with $t\bar{t}$ events in pp collisions at $\sqrt{s}$ =13 TeV*. Eur. Phys. J. C 79 (2019) 836
- The ATLAS Collaboration. *Searches for third-generation scalar leptoquarks in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector*. JHEP 06 (2019) 144

- The ATLAS Collaboration. *Observation of $H \to b\bar{b}$ decays and VH production with the ATLAS detector.* Phys. Lett. B 786 (2018) 59
- The ATLAS Collaboration. *Search for Higgs bosons produced via vector-boson fusion and decaying into bottom quark pairs in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector.* Phys. Rev. D 98, 052003 (2018)
- The ATLAS Collaboration. *Searches for resonant and non-resonant di-Higgs production in the bb-$\tau\tau$ decay channel in pp collisions at $\sqrt{s}$ =13 TeV with the ATLAS detector.* Phys. Rev. Lett. 121, 191801 (2018)
- The ATLAS Collaboration. *Measurement of the Inelastic Proton-Proton Cross-Section at $\sqrt{s}$ =13 TeV with the ATLAS Detector.* Phys. Rev. Lett. 117 (2016) 182002.
- The ATLAS Collaboration. *Search for new phenomena in final states with an energetic jet and large missing transverse momentum in pp collisions at $\sqrt{s}$ =8 TeV with the ATLAS detector* Eur. Phys. J. C (2015) 75:299
- The ATLAS Collaboration. *Measurement of the Inelastic Proton-Proton Cross-Section at $\sqrt{s}$ =7 TeV with the ATLAS Detector.* Nature Comm. vol 2, arXiv:1104.0326.
- The ATLAS Collaboration. *Luminosity Determination in pp Collisions at $\sqrt{s}$ =7 TeV Using the ATLAS Detector at the LHC.* Eur.Phys.J. C71 (2011) 1630. arXiv:1101.2185.
- The ATLAS Collaboration. *Charged-particle multiplicities in pp interactions measured with the ATLAS detector at the LHC* New J. Phys. 13 (2011) 053033. arXiv:1012.5104.
- The ATLAS Collaboration. *Charged-particle multiplicities in pp interactions at $\sqrt{s}$ = 900 GeV measured with the ATLAS detector at the LHC*. The ATLAS Collaboration. Phys. Lett. B 688, 21 (2010) arXiv:1003.3124.