Stanford



# Lauren Tompkins

Associate Professor of Physics

Curriculum Vitae available Online

### CONTACT INFORMATION

- **Administrative Contact**

  Fang Tian - Administrative Associate

  **Email** fangft@stanford.edu

## Bio

### ACADEMIC APPOINTMENTS

- Associate Professor, Physics

### ADMINISTRATIVE APPOINTMENTS

- Fast Tracker Project Leader, ATLAS Experiment, (2017-2019)
- Management Advisory Committee Member, US ATLAS, (2016-2019)
- Diversity and Inclusion Contact, ATLAS Experiment, (2017-2018)

### HONORS AND AWARDS

- CAREER Award, National Science Foundation (2016-2021)
- Terman Fellow, Stanford University (2014-2017)

### PROFESSIONAL EDUCATION

- PhD, University of California at Berkeley , Physics (2011)
- BA, University of California at Berkeley , Physics and Mathematics (2004)

### LINKS

- Tompkins Group Website: http://stanford.edu/group/stanford_atlas/

## Research & Scholarship

### CURRENT RESEARCH AND SCHOLARLY INTERESTS

Professor Tompkins's research focuses on understanding the relationships which govern matter's most fundamental constituents. As a member of the ATLAS experiment at the Large Hadron Collider (LHC), she utilizes the world's highest energy person-made particle collisions in order to understand the mechanism that gives particles mass, whether or not our current model of elementary particle interactions is a complete description of nature, and if dark matter can be produced and studied in colliders.

In order to search for the exceedingly rare interactions which may provide insight to these questions, the LHC will produce a blistering rate of 50 to 80 proton-proton collisions every 25 nanoseconds in 2015 and beyond. Professor Tompkins works on the design and implementation of custom electronics which will improve the ATLAS experiment's ability to pick out the collisions which produce the Higgs bosons, dark matter particles and other rare events out of the deluge of ordinary interactions. Her group focuses on particles called heavy flavor fermions, the most massive particles not responsible for mediating interactions. Because they are so heavy, they may have a special connection to the origin of mass or physics beyond our current models of particle interactions.

She is additionally a member of the Light Dark Matter Experiment (LDMX), a proposed experiment to produce and detect dark matter in the laboratory utilizing an accelerated beam of electrons, and the Heavy Photon Search Experiment, which searches for visible decays of dark photons.

Please see her group website for a full description of her research activities.

### PROJECTS

- ATLAS Experiment at the LHC - CERN
- The Light Dark Matter Experiment (LDMX)
- Heavy Photon Search Experiment

## Teaching

### COURSES

**2026-27**

- Citizenship in the 21st Century: COLLEGE 102 (Win)
- Introduction to Particle Physics I: PHYSICS 152, PHYSICS 252 (Aut)
- Survey of Current Topics in Experimental Particle Physics: PHYSICS 253 (Win)

**2025-26**

- Citizenship in the 21st Century: COLLEGE 102 (Win)
- Introduction to Particle Physics I: PHYSICS 152, PHYSICS 252 (Spr)
- Survey of Current Topics in Experimental Particle Physics: PHYSICS 253 (Win)

**2024-25**

- Mechanics: PHYSICS 41 (Aut)

**2023-24**

- Mechanics: PHYSICS 41 (Win)
- STEMentors in Physics: PHYSICS 41S (Win)

### STANFORD ADVISEES

**Doctoral Dissertation Reader (AC)**

Tori Ankel, Ruben Coronel, Sarah Gaiser, Balint Kurgyis, Emrys Peets, Lillian Santos-Olmsted

**Postdoctoral Faculty Sponsor**

Majd Ghrear

**Doctoral Dissertation Advisor (AC)**

Elizabeth Berzin, Noe Gonzalez, Sadaf Kadir

# Publications

## PUBLICATIONS

- **Measurement of the LCLS-II dark current using the LDMX trigger scintillator prototype** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*

  Berzin, E., Bryngemark, L., Group, R., Kaminski, J., Nelson, T., O'Dwyer, R., Pascadlo, J., Peets, E., Reese, B., Tompkins, L., Wall, K., Whitbeck, A.

  2026; 1091

- **Expected sensitivity of the Light Dark Matter eXperiment to long-lived dark photons and axion-like particles** *JOURNAL OF HIGH ENERGY PHYSICS*

  Akesson, T., Barton, C., Bell, C., Berzin, E., Brennan, L., Bryngemark, L., Curtis, L., Daghlian, P., Dukes, E., Dutta, V., Echenard, B., Ehrlich, R., Eichlersmith, et al

  2026

- **Calibration of the jet energy scale and resolution of small-radius jets using semileptonic t(t)over-bar events with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Acharya, B. S., Ackermann, A., Bourdarios, et al

  2026; 86 (8)

- **Search for Higgs boson pair production in association with top-quark pairs using 196 fb<SUP>-1</SUP> of proton-proton collision data at √s=13 and 13.6 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Acharya, B. S., Ackermann, A., Bourdarios, et al

  2026

- **Missing-mass search in forward-proton-tagged dilepton events with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Acharya, B. S., Ackermann, A., Bourdarios, et al

  2026

- **Effective field theory interpretation of ATLAS measurements involving the Higgs boson, electroweak bosons and the top quark** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Acharya, B. S., Ackermann, A., Bourdarios, et al

  2026

- **Combination of Measurements of CP Properties of Higgs Boson Interactions with Vector Bosons Using Proton-Proton Collisions at sqrt[s]=13 TeV with the ATLAS Detector.** *Physical review letters*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Acharya, B. S., Ackermann, A., Adam Bourdarios, et al

  2026; 137 (2): 021801

- **Measurement of the |V<sub>cb</sub>| element of the CKM matrix in t(t)over-bar decays with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Acharya, B. S., Ackermann, A., Bourdarios, et al

  2026

- **Search for electroweak t(t)over-barWj production in multileptonic final states at √s=13 TeV with the ATLAS detector and bounds on effective field theory operators** *PHYSICAL REVIEW D*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026; 114 (1)

- **Study of particle fluence effects on collected charge and depletion voltage of the ATLAS IBL planar pixel sensors** *JOURNAL OF INSTRUMENTATION*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Acharya, B. S., Ackermann, A., Ackerschott, et al

  2026; 21 (7)

- **Observation of structures in the J/ψ + ψ(2S) mass spectrum with the ATLAS detector** *PHYSICAL REVIEW D*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026; 113 (11)

- **Search for dimuon resonance in the 35 to 75 GeV mass range using 140 fb<SUP>-1</SUP> of 13 TeV pp collisions with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Acharya, B. S., Ackermann, A., Adam Bourdarios, et al

  2026

- **Search for higgsinos in compressed mass spectra using low-momentum tracks in pp collisions at √s=13 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026

- **Measurement of differential t-channel single top (anti)quark production cross-sections at 13 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026

- **Measurement of the W-boson angular coefficients and transverse momentum in pp collisions at √s=13 TeV with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026; 86 (5)

- **Precise measurement of the t(t)over-bar production cross-section and lepton differential distributions in eμ dilepton events from √s=13 TeV pp collisions with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026; 86 (5)

- **Electroweak diboson production in association with a high-mass dvijet system in semileptonic final states from pp collisions at √s=13 TeV with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026; 86 (4)

- **Search for signatures of electroweakinos with photons, jets, and large missing transverse momentum in √s=13 TeV pp collisions with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026

- **Measurement of the top-quark mass using decays with a J/ψ meson at √s=13 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026

- **Measurement of the azimuthal anisotropy of charged particles in √s<sub>NN</sub>=5.36 TeV <SUP>16</SUP>O+<SUP>16</SUP>O and <SUP>20</SUP>Ne+<SUP>20</SUP>Ne collisions with the ATLAS detector** *PHYSICAL REVIEW C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026; 113 (4)

- **Measurement of coherent exclusive J/ψ → μ<SUP>+</SUP> μ<SUP>-</SUP> production in ultraperipheral Pb plus Pb collisions at √s<sub>NN</sub>=5.36 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

2026

- **Search for Beyond the Standard Model physics with anomaly dvetection in multilepton final states in pp collisions at √s=13 TeV with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026; 86 (3)

- **Search for heavy neutral leptons in decays of W bosons produced in 13 TeV pp collisions using prompt signatures in the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026; 86 (2)

- **Measurements of differential cross-sections of WbWb production in the dilepton channel in pp collisions at √s=13 TeV using the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026

- **Measurement of the top-quark Yukawa coupling from t(t)over-bar production in the lepton plus jets final state using pp collisions at √s=13 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2026

- **Transforming jet flavour tagging at ATLAS.** *Nature communications*

  ATLAS Collaboration, Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., et al

  2026; 17 (1): 541

- **Auto-tuning capabilities of the ACTS track reconstruction suite**

  Allaire, C., Garg, R., Grasland, H., Hofgard, E., Rousseau, D., Salahat, R., Salzburger, A., Tompkins, L., IOP PUBLISHING LTD

  IOP PUBLISHING LTD.2026

- **Sensitivity of an early dark matter search using the electromagnetic calorimeter as a target for the Light Dark Matter eXperiment** *JOURNAL OF HIGH ENERGY PHYSICS*

  Akesson, T., Berzin, E., Bravo, C., Brennan, L., Bryngemark, L., Butti, P., Delzanno, F., Dukes, E., Dutta, V., Echenard, B., Ehrlich, R., Eichlersmith, T., Elen, et al

  2025

- **Search for Light Long-Lived Particles in pp Collisions at √s =13 TeV Using Displaced Vertices in the ATLAS Inner Detector (vol 133, 161803, 2024)** *PHYSICAL REVIEW LETTERS*

  Aad, G., ATLAS Collaboration

  2025; 135 (25): 161803

- **Search for squarks and gluinos in pp collisions at √s=13 TeV and 13.6 TeV in events with τ-leptons, jets and missing transverse momentum using the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 85 (12)

- **The environmental impact, carbon emissions and sustainability of computing in the ATLAS experiment** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 85 (12)

- **Evidence for the Dimuon Decay of the Higgs Boson in pp Collisions with the ATLAS Detector.** *Physical review letters*

Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

2025; 135 (23): 231802

- **Measurement of the top-quark pole mass in dileptonic (t)over-bar+1-jet events at √s=13 TeV with the ATLAS experiment** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025

- **Search for single production of vector-like quarks decaying into W(lv)b in pp collisions at √s=13 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025

- **Search for resonant leptoquark production via lepton-jet signatures in pp collisions at √s=13 TeV and √s=13.6 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Collaboration, A. S., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, et al

  2025

- **Search for neutral long-lived particles that decay into displaced jets in the ATLAS calorimeter in association with leptons or jets using pp collisions at √s = 13 TeV (vol 2024, 036, 2024)** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, et al

  2025

- **Search for electroweak production of vector-like leptons in t -lepton and b-jet final states in pp collisions at √s=13 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025

- **A continuous calibration of the ATLAS flavour-tagging classifiers via optimal transportation maps** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, et al

  2025; 85 (11)

- **Search for events with one displaced vertex from long-lived neutral particles decaying into hadronic jets in the ATLAS muon spectrometer in pp collisions at √s=13 TeV** *PHYSICAL REVIEW D*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 112 (9)

- **Measurements and interpretations of W<SUP>±</SUP>Z production cross-sections in pp collisions at √s=13 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025

- **Observation of double parton scattering in same-sign W boson pair production in pp collisions at √s=13 TeV with the ATLAS detector** *PHYSICS LETTERS B*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 870

- **Weakly supervised anomaly detection for resonant new physics in the dijet final state using proton-proton collisions at √s=13 TeV with the ATLAS detector** *PHYSICAL REVIEW D*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 112 (7)

- **Search for decays of the Higgs boson into scalar particles decaying into four or six b quarks using pp collisions at √s=13 TeV with the ATLAS detector** *PHYSICAL REVIEW D*
  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al
  2025; 112 (7)

- **Probing the Higgs boson CP properties in vector-boson fusion production in the H → τ<SUP>+</SUP>τ<SUP>-</SUP> channel with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*
  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al
  2025

- **A measurement of the high-mass τ(τ)over-bar production cross-section at √s=13 TeV with the ATLAS detector and constraints on new particles and couplings** *JOURNAL OF HIGH ENERGY PHYSICS*
  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al
  2025

- **Search for the production of a Higgs boson in association with a single top quark in pp collisions at √s=13 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*
  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al
  2025

- **Evidence for Longitudinally Polarized W Bosons in the Electroweak Production of Same-Sign W Boson Pairs in Association with Two Jets in pp Collisions at sqrt[s]=13 TeV with the ATLAS Detector.** *Physical review letters*
  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al
  2025; 135 (11): 111802

- **A search for dark matter produced in association with a dark Higgs boson decaying into a Higgs boson pair in 3b or 4b final states using pp collisions at √s=13 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*
  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al
  2025

- **Search for emerging jets in pp collisions at s=13.6 TeV with the ATLAS experiment** *REPORTS ON PROGRESS IN PHYSICS*
  ATLAS Collaborat
  2025; 88 (9)

- **A precise measurement of the jet energy scale derived from single-particle measurements and in situ techniques in proton-proton collisions at √s=13 TeV with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*
  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, et al
  2025; 85 (9)

- **Azimuthal anisotropies of charged particles with high transverse momentum in Pb plus Pb collisions at √s<sub>NN</sub>=5.02 TeV with the ATLAS detector** *PHYSICAL REVIEW C*
  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al
  2025; 112 (2)

- **Measurements of W<SUP>+</SUP>W<SUP>-</SUP> production cross-sections in pp collisions at √s=13 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*
  Aad, G., Abbott, B., Abeling, K., Abicht, N. J., Abidi, S. H., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Abusleme Hoffman, A. C., Acharya, B. S., Bourdarios, C., Adamczyk, et al
  2025

- **Search for a new pseudoscalar decaying into a pair of bottom and antibottom quarks in top-associated production in √s=13 TeV proton-proton collisions with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*
  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

2025; 85 (8)

- **Erratum: Software and computing for Run 3 of the ATLAS experiment at the LHC** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Garcia, E., Acharya, et al

  2025; 85 (8)

- **Measurements of the production cross-sections of a Higgs boson in association with a vector boson and decaying into WW* with the ATLAS detector at √s=13 TeV** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, et al

  2025

- **Search for new physics in final states with semivisible jets or anomalous signatures using the ATLAS detector** *PHYSICAL REVIEW D*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 112 (1)

- **Energy scale and resolution for anti-k<sub>t</sub> jets with radius parameters R=0.2 and 0.6 measured in proton-proton collisions at √s=13 TeV with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 85 (7)

- **Search for heavy neutral leptons in decays of W bosons using leptonic and semi-leptonic displaced vertices in √s=13 TeV pp collisions with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025

- **Search for displaced leptons in √s=13 TeV and 13.6 TeV pp collisions with the ATLAS detector** *PHYSICAL REVIEW D*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, et al

  2025; 112 (1)

- **Search for cascade decays of charged sleptons and sneutrinos in final states with three leptons and missing transverse momentum in pp collisions at √s=13 TeV with the ATLAS detector** *PHYSICAL REVIEW D*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 112 (1)

- **Cross-section measurements for the production of a W-boson in association with high-transverse-momentum jets in pp collisions at √s=13 TeV with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 85 (7)

- **Differential cross-section measurements of D<SUP>±</SUP> and D<sub>s</sub><SUP>±</SUP> meson production in proton-proton collisions at √s=13 TeV with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, et al

  2025

- **Precision measurement of the B<SUP>0</SUP> meson lifetime using B<SUP>0</SUP> → J/ψK*<SUP>0</SUP> decays with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhormae, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, et al

  2025; 85 (7)

- **Measurement of W<SUP>±</SUP>-boson differential cross-sections in proton-proton collisions with low pile-up data at √s=5.02TeV and 13TeV with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

2025; 85 (7)

- **Improved reconstruction of highly boosted τ-lepton pairs in the ττ → (μν<sub>μ</sub>ν<sub>τ</sub>)(hadrons + ν<sub>τ</sub>) decay channels with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 85 (6)

- **Measurement of t-channel production of single top quarks and antiquarks in pp collisions at 13TeV using the full ATLAS Run 2 data sample (vol 2024, 305, 2024)** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Abbott, B., Abeling, K., Abicht, N. J., Abidi, S. H., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Abusleme Hoffman, A. C., Acharya, B. S., Bourdarios, C., Adamczyk, et al

  2025

- **The performance of missing transverse momentum reconstruction and its significance with the ATLAS detector using 140 fb<SUP>-1</SUP> of √s=13 TeV pp collisions** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abeling, K., Abicht, N. J., Abidi, S. H., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, B. S., Bourdarios, C., Adamczyk, et al

  2025; 85 (6)

- **Search for t(t)over-bar H/A→t(t)over-bart(t)over-bar production in proton-proton collisions at √s=13 TeV with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, et al

  2025; 85 (5)

- **Observation of tt[over ¯] Production in Pb+Pb Collisions at sqrt[s_{NN}]=5.02 TeV with the ATLAS Detector.** *Physical review letters*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 134 (14): 142301

- **Measurement of photonuclear jet production in ultraperipheral Pb plus Pb collisions at √s<sub>NN</sub>=5.02 TeV with the ATLAS detector** *PHYSICAL REVIEW D*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025; 111 (5)

- **Software and computing for Run 3 of the ATLAS experiment at the LHC** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Accion Garcia, E., Acharya, et al

  2025; 85 (3)

- **Measurement of the associated production of a top-antitop-quark pair and a Higgs boson decaying into a b(b)over-bar pair in pp collisions at √s=13 TeV using the ATLAS detector at the LHC** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, et al

  2025; 85 (2)

- **Search for a heavy charged Higgs boson decaying into a W boson and a Higgs boson in final states with leptons and b-jets in √s=13 TeV pp collisions with the ATLAS detector** *JOURNAL OF HIGH ENERGY PHYSICS*

  Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abulaiti, Y., Acharya, B. S., Ackermann, et al

  2025

- **Precise measurements of W- and Z-boson transverse momentum spectra with the ATLAS detector using pp collisions at √s=5.02 TeV and 13 TeV** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Abbott, B., Abeling, K., Abicht, N. J., Abidi, S. H., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, B. S., Bourdarios, C., Adamczyk, L., Adamek, et al

  2024; 84 (10)

- **Search for Light Long-Lived Particles in pp Collisions at sqrt[s]=13 TeV Using Displaced Vertices in the ATLAS Inner Detector.** *Physical review letters*

Aad, G., Aakvaag, E., Abbott, B., Abdelhameed, S., Abeling, K., Abicht, N. J., Abidi, S. H., Aboelela, M., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, et al

2024; 133 (16): 161803

- **Potentiality of automatic parameter tuning suite available in ACTS track reconstruction software framework**

  Garg, R., Allaire, C., Salzburger, A., Grasland, H., Tompkins, L., Hofgard, E.

  edited by Espinal, DeVita, R., Laycock, P., Shadura, O.

  E D P SCIENCES.2024

- **Advances in developing deep neural networks for finding primary vertices in proton-proton collisions at the LHC**

  Akar, S., Elashri, M., Garg, R., Kauffman, E., Peters, M., Schreiner, H., Sokoloff, M., Tepe, W., Tompkins, L.

  edited by Espinal, DeVita, R., Laycock, P., Shadura, O.

  E D P SCIENCES.2024

- **Photon-rejection power of the Light Dark Matter eXperiment in an 8 GeV beam** *JOURNAL OF HIGH ENERGY PHYSICS*

  Akesson, T., Bravo, C., Brennan, L., Bryngemark, L., Butti, P., Dukes, E., Dutta, V., Echenard, B., Eichlersmith, T., Eisch, J., Elen, E., Ehrlich, R., Froemming, et al

  2023

- **Observation of four-top-quark production in the multilepton final state with the ATLAS detector** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Abbott, B., Abbott, D. C., Abud, A., Abeling, K., Abhayasinghe, D. K., Abidi, S. H., AbouZeid, O. S., Abraham, N. L., Abramowicz, H., Abreu, H., Abulaiti, Y., Acharya, et al

  2023; 83 (6)

- **Operation and performance of the ATLAS semiconductor tracker in LHC Run 2** *JOURNAL OF INSTRUMENTATION*

  Aad, G., Abbott, B., Abbott, D. C., Abud, A., Abeling, K., Abhayasinghe, D. K., Abidi, S. H., Aboulhorma, A., Abramowicz, H., Abreu, H., Abulaiti, Y., Abusleme Hoffman, A. C., Acharya, et al

  2022; 17 (1)

- **Search for New Phenomena in Final States with Two Leptons and One or No b-Tagged Jets at sqrt[s]=13TeV Using the ATLAS Detector.** *Physical review letters*

  Aad, G., Abbott, B., Abbott, D. C., Abed Abud, A., Abeling, K., Abhayasinghe, D. K., Abidi, S. H., Abramowicz, H., Abreu, H., Abulaiti, Y., Abusleme Hoffman, A. C., Acharya, B. S., Achkar, et al

  2021; 127 (14): 141801

- **ATLAS Run 1 searches for direct pair production of third-generation squarks at the Large Hadron Collider** *EUROPEAN PHYSICAL JOURNAL C*

  Aad, G., Abbott, B., Abdallah, J., Abdinov, O., Aben, R., Abolins, M., AbouZeid, O. S., Abramowicz, H., Abreu, H., Abreu, R., Abulaiti, Y., Acharya, B. S., Adamczyk, et al

  2015; 75 (10)

- **Search for photonic signatures of gauge-mediated supersymmetry in 8 TeV pp collisions with the ATLAS detector** *PHYSICAL REVIEW D*

  Aad, G., Abbott, B., Abdallah, J., Abdinov, O., Aben, R., Abolins, M., AbouZeid, O. S., Abramowicz, H., Abreu, H., Abreu, R., Abulaiti, Y., Acharya, B. S., Adamczyk, et al

  2015; 92 (7)

- **Measurement of Higgs boson production in the diphoton decay channel in pp collisions at center-of-mass energies of 7 and 8 TeV with the ATLAS detector** *PHYSICAL REVIEW D*

  Aad, G., Abbott, B., Abdallah, J., Khalek, S. A., Abdinov, O., Aben, R., Abi, B., Abolins, M., AbouZeid, O. S., Abramowicz, H., Abreu, H., Abreu, R., Abulaiti, et al

  2014; 90 (11)