

Stanford



Lauren Tompkins

Associate Professor of Physics

 Curriculum Vitae available Online

CONTACT INFORMATION

• Administrative Contact

Zhenhua Wang - Administrative Associate

Email suhua@stanford.edu

Tel (650) 725-0811

Bio

ACADEMIC APPOINTMENTS

- Associate Professor, Physics

ADMINISTRATIVE APPOINTMENTS

- Executive Committee Member, APS Division of Particle and Fields, (2020- present)
- 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

- ATLAS @ Stanford: http://stanford.edu/group/stanford_atlas/
- Stanford Computational Data Acquisition Systems Laboratory: <https://codaslab.sites.stanford.edu/>

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.

PROJECTS

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

Teaching

COURSES

2021-22

- Mechanics: PHYSICS 41 (Aut)

2020-21

- Diverse Perspectives in Physics: PHYSICS 94SI (Spr)
- Mechanics: PHYSICS 41 (Spr)

2019-20

- Diverse Perspectives in Physics: PHYSICS 94SI (Spr)

2018-19

- Beyond the Laboratory: Physics, Identity, and Society: PHYSICS 93SI (Win)
- Diverse Perspectives in Physics: PHYSICS 94SI (Spr)
- Introduction to Particle Physics I: PHYSICS 152, PHYSICS 252 (Spr)
- Physics in the 21st Century: PHYSICS 83N (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Tyler Anderson, Laura Domine, Xinyu Ren, Murtaza Safdari

Postdoctoral Faculty Sponsor

Lene Kristian Bryngemark, Rocky Garg

Postdoctoral Research Mentor

Rocky Garg