Hannah Griggs – Curriculum Vitae

Ph.D. Candidate, School of Physics
Georgia Institute of Technology
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I Education

Georgia Institute of Technology **Atlanta, GA**
Ph.D., Physics Exp. May 2024
School of Physics | GPA 3.73/4.00

- Thesis title: "A hierarchical search for gravitational waves associated with large-catalog and sub-threshold multimessenger events" (Advisor: Laura Cadonati)

Certificate of Sustainable Energy and Environmental Management May 2023
School of Public Policy | GPA 4.00/4.00

- Courses: Life cycle assessment, Environmental economics, Energy technology & policy, Sustainable energy & environmental management

Bryn Mawr College **Bryn Mawr, PA**
B.A., Physics, Mathematics | Magna Cum Laude | GPA 3.64/4.00 Aug 2015 - May 2018

II Honors

2020-2023 GT Amelio Travel Awards, APS DGRAV Travel Awards, over $4,000 cumulative
2020 NSF GRFP Honorable Mention, National Science Foundation
2018-2022 Presidential Fellow, Georgia Institute of Technology, $20,000
2015-2018 Presidential Scholarship, Bryn Mawr College, $75,000
2015 NIAID CIO Award, National Institutes of Health
2014 BCBB Ignite Innovation Competition, National Institutes of Health

III Products

Selected Publications
*Author on 50 publications as part of the LIGO-Virgo-KAGRA Collaboration.

2024 **H.L Griggs**, J. Pughe-Sanford, V. Thomas. "Modeling centralization of utility systems as phase transitions." In preparation.
2024 S. Shah, **H.L. Griggs**, E. Chow, L. Cadonati. "Classification of compact binary coalescences in gravitational wave data using Gaussian Processes." In preparation.
2024 **H.L. Griggs**, V. Cáceres, S. Hanumasagar, P.A. Baynard, L. Cadonati. "A hierarchical approach to multi-messenger gravitational wave searches." In preparation.
2024 E. Vincent, **H.L. Griggs**, S. Ghonge, and L.Cadonati. "Impact of Noise Transient Removal in Searches for GW-GRB and GW-FRB Coincidences in LIGO/Virgo." In preparation.

2024 LIGO Scientific Collaboration, Virgo Collaboration, KAGRA Collaboration, CHIME/FRB Collaboration, incl. **H.L. Griggs.** "Search for Gravitational Waves Associated with Fast Radio Bursts Detected by CHIME/FRB During the LIGO-Virgo Observing Run O3b." In preparation.

2023 LIGO Scientific Collaboration, Virgo Collaboration, KAGRA Collaboration, CHIME/FRB Collaboration, incl. **H.L. Griggs.** "Search for Gravitational Waves Associated with Fast Radio Bursts Detected by CHIME/FRB During the LIGO-Virgo Observing Run O3a." *The Astrophysical Journal,* vol. 955, no. 2 (2023)

2022 LIGO Scientific Collaboration, Virgo Collaboration, KAGRA Collaboration, incl**. H.L. Griggs.** "Search for gravitational waves associated with gamma-ray bursts detected by Fermi and Swift during the LIGO-Virgo run O3b." *The Astrophysical Journal*, vol. 928, no. 2 (2022)

2021 LIGO Scientific Collaboration, Virgo Collaboration, KAGRA Collaboration, incl**. H.L. Griggs. "**Search for gravitational waves associated with gamma-ray bursts detected by Fermi and Swift during the LIGO-Virgo run O3a." *The Astrophysical Journal*, vol. 915, no. 2 (2021)

2016 M. Pirtskhalava et. al incl. **H.L. Griggs**. "DBAASP v.2: an enhanced database of structure and antimicrobial/cytotoxic activity of natural and synthetic peptides." *Nucleic Acids Research*, vol. 44, no. 13 (2016)

Conferences + Presentations

2024 H.L. Griggs "A hierarchical approach to targeted multi-messenger gravitational wave searches" APS April Meeting, April 2024, Sacramento, USA, Talk

2023 H.L. Griggs "A hierarchical approach to multi-messenger gravitational wave searches" 15th Edoardo Amaldi Conference on Gravitational Waves, 2023, Virtual, Talk

2023 H.L. Griggs "Expanding the reach of multi-messenger gravitational wave searches" University of Wisconsin Milwaukee, CGCA Seminar, March 2023, Milwaukee USA [Invited]

2023 H.L. Griggs "A hierarchical approach to multi-messenger gravitational wave searches" APS April Meeting, April 2023, Minneapolis USA, Talk

2022 H.L. Griggs "A streamlined triggered GW search for sub-threshold and large-catalog multi-messenger events" LIGO-Virgo-KAGRA Collaboration Meeting, September 2022, Cardiff UK, Poster

2021 H.L. Griggs "Developing a Neutrino-Triggered Detection Pipeline for Identifying Sub-100TeV Neutrinos Coincident with Gravitational Waves from Compact Binary Mergers." Gravitational Wave Physics and Astronomy Workshop, 2021, Hannover Germany, Poster

2021 H.L. Griggs on behalf of the LVK "Search for Gravitational Waves Associated with Gamma-Ray Bursts in Advanced LIGO-Virgo's Third Observing Run." 14th Edoardo Amaldi Conference on Gravitational Waves, 2021, Virtual, Talk

IV Research

2018-Present **Georgia Institute of Technology | School of Physics** Atlanta, GA
Advisor: L. Cadonati

- Led and coordinated multinational research initiatives spanning eight countries.
- Developed streamlined data analysis algorithm to identify gravitational wave events coincident with large astrophysical neutrino and electromagnetic catalogs (co-advised by I. Taboada, School of Physics).

- Developed machine learning algorithm for streamlined gravitational wave searches (co-advised by E. Chow, GT College of Computing).

2022-Present **Georgia Institute of Technology | School of Public Policy** Atlanta, GA
Advisor: V. Thomas

- Simulated utility networks with a simplified thermodynamic phase transition model to investigate critical points of utility outages and uptime across a network.

2017-2018 **Max Planck Institute for Gravitational Physics** Hannover, Germany
Advisor: B. Allen, C. Capano, A.H. Nitz

- Interfaced between theory and computational teams to implement the effect of Doppler shifts in gravitational wave data, allowing for a more detailed look at black hole systems in space.
- Excelled in a German-language working environment.

2017-2018 **Haverford College** Haverford, PA
Advisor: A. Lommen

- Analyzed filtering methods for X-ray data from the Neutron star Interior Composition Explorer (NICER) instrument on the International Space Station to normalize signal arrival times across events.

2014-2015 **National Institutes of Health** Bethesda, MD
Advisor: P. Cruz, Bioinformatics and Computational Biosciences Branch

- Developed an automated pipeline for adding molecular dynamics information to the Database of Antimicrobial Activity and Structure of Peptides (DBAASP).
- Simulated protein folding and modeled the effects of mutations on protein function for use in drug development.

V Service and Leadership

Georgia Institute of Technology

Physics Allies for Wellness 2022-Present
Mentor

- Established the organization, negotiated scope with stakeholders, and developed the budget.
- Provided mentorship and support to community members at all levels and act as a liaison between the community and the administration to address general concerns in the department.
- Mentored over 20 students within the Physics Department during the inaugural year.
- Served as a liaison between the community and administration, addressing stakeholder concerns.

Graduate Student Diversity Council 2020-Present
School of Physics Representative

- Proposed policy initiatives enhancing the experience of College of Sciences graduate students

Society of Women in Physics 2019-Present
Vice President

- Promoted the participation and success of women in physics at Georgia Tech as well as the greater Atlanta area.
- Organized events to bring together the physics community, provide a biweekly space for the community to discuss women's issues in STEM and provide career and academic support through mentorship.

Graduate Association of Physicists 2019-Present
Mentor

- Guided and advised 80 first-year physics graduate students through academic and personal experiences.

VI Teaching/Mentorship

Georgia Institute of Technology Physics Department Atlanta, GA

- Mentor for 3 undergraduate researchers and 2 junior graduate students. 2021-Present
- Teaching assistant for over 300 students spanning two years. 2018-2020

Bryn Mawr College Physics Department Bryn Mawr, PA

- Teaching assistant for over 100 undergraduate and post-baccalaureate students. 2016-2018

VII Other Certifications/Skills

Open Science Grid User School July, 2019
University of Wisconsin, Madison Madison, WI

- Trained in high-throughput computing (HTC) and HTCondor systems
- Trained in large-scale distributed computing and handling large datasets

VIII Memberships

American Physical Society (APS) - IEEE - Graduate Women in Science (GWIS) - DarkSky International

IX References

Laura Cadonati, Professor, School of Physics, Associate Dean for Research, College of Sciences, Georgia Institute of Technology, cadonati@gatech.edu

Valerie Thomas, Anderson-Interface Chair of Natural Systems Professor, School of Industrial and Systems Engineering, Georgia Institute of Technology, valerie.thomas@isye.gatech.edu

Ignacio Taboada, Professor, School of Physics, Georgia Institute of Technology, itaboada@gatech.edu

Gongjie Li, Professor, School of Physics, Georgia Institute of Technology, gongjie.li@physics.gatech.edu