

Hannah Hasson

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<https://hrhasson.github.io/>

EDUCATION

University of Rochester

Master of Arts in Physics

May 2021

University of Texas at Austin

Bachelor of Science in Physics, Bachelor of Science in Astronomy
Special Honors in Astronomy

May 2018

Overall GPA: 3.6805/4.0

TECHNICAL STRENGTHS

Computer Languages

Python, Mathematica, MATLAB, Bash

Software & Tools

VisIT, LaTeX, ImageJ, AutoCAD, Excel

Hard skills

Soldering, mill, lathe, basic and high-voltage electronics

Operating high-power optical lasers, alignment of optical systems

Communication

Comfortable with public speaking, intermediate Spanish speaker

EXPERIENCE

University of Rochester Physics & Astronomy Dept

Graduate Research Assistant under P. Gourdain

August 2018 - present

Rochester, NY

- Simulating novel 3D printed loads for pulsed power accretion outflows experiment
- Running plasma accretion outflow experiments on Cornell's COBRA driver
- Constructed shearing interferometer and shadowgraphy plasma diagnostic

Sandia National Lab

Graduate Research Intern under C. Myers

June - August 2019

Albuquerque, NM

- Wrote MATLAB scripts to test b-dot calibration methods for Z Machine
- Helped construct shadowgraphy plasma diagnostic for Mykonos driver

University of Texas Astronomy Department

Undergraduate Researcher under K. McQuinn

August 2016 - August 2018

Austin, TX

- Observed for 3 nights on the 107" telescope at McDonald Observatory
- Used IRAF code to reduce CCD image data and calculate star formation rates of dwarf galaxies

Rice University Physics & Astronomy Department

Undergraduate Researcher under E. Liang

June 2014 - Jan 2018

Houston, TX

- Built and tested novel scintillator gamma-ray spectrometer
- Collected spectral data and served as co-lead for positron experiment at Texas Petawatt Laser
- Conducted filter stack spectrometer calibration tests with Na-22 source

- Reduced streaked spectra from white dwarf experiment at Sandia National Lab
- Implemented MESA stellar evolution software for hydrogen flashes in extremely low-mass white dwarf stars
- Observed on 30", 36", and 82" telescopes at McDonald Observatory

PUBLICATIONS

Design of a 3-D Printed Experimental Platform for Studying the Formation and Magnetization of Turbulent Plasma Jets

HR Hasson, MB Adams, M Evans, R Shapovalov, I West-Abdallah, J Young, J Greenly, D Hammer, B Kusse, C Seyler, A Frank, P-A Gourdain

DOI: 10.1109/TPS.2020.3020000

Published 2020/09/18

Using extended MHD to explore lasers as a trigger for x-pinches

JR Young, MB Adams, H Hasson, I West-Abdallah, M Evans, P-A Gourdain

DOI: 10.1063/5.0060581

Published 2021/10/28

Coreless Fast Pulsed-Power Drivers

P-A Gourdain, M Evans, P Efthimion, R Ellis, W Fox, HR Hasson, H Ji, RV Shapovalov, JR Young, I West-Abdallah

DOI: 10.1109/TPS.2021.3086322

Published 2021/6/22

Current adding transmission lines for compact MA-class linear transformer drivers

P-A Gourdain, MB Adams, M Evans, HR Hasson, RV Shapovalov, RB Spielman, JR Young, I West-Abdallah

DOI: : 10.1103/PhysRevAccelBeams.23.030401

Published 2020/3/30

Low-Inductance Load Test of a New 250-Ka, 150-Ns Pulser for Fast X-Pinch Sources

R Shapovalov, M Adams, M Evans, H Hasson, J Young, I West-Abdallah, PA Gourdain

DOI: : 10.1109/PPPS34859.2019.9009748

Published 2019/6/23

Enhancing cylindrical compression by reducing plasma ablation in pulsed-power drivers

P-A Gourdain, MB Adams, M Evans, HR Hasson, RV Shapovalov, JR Young, I West-Abdallah

DOI: : 10.1063/1.5086305

Published 2019/4/17

The SAS Gamma-Ray Spectrometer

E Liang, A Dashko, K Yao, W Lo, H Hasson, A Zhang, G Wong, Y Zhang, H Quevedo, T Ditmire

DOI: : 10.48550/arXiv.1904.08536

Published 2019/4/17

High e⁺/e⁻ ratio dense pair creation with 1021 W.cm⁻² laser irradiating solid targets

E Liang, T Clarke, A Henderson, W Fu, W Lo, D Taylor, P Chaguine, S Zhou, Y Hua, X Cen, X Wang, J Kao, H Hasson, G Dyer, K Serratto, N Riley, M Donovan, T Ditmire

DOI: : 10.1038/srep13968

Published 2015/9/14

TALKS & POSTERS

Studying the Collimation of Outflows in Radially Converging Plasmas from a 3D-Printed Load

Poster presented at the 2021 APS Division of Plasma Physics conference

The Generation of Magnetized Jets Using 3D Printed Loads on a Pulsed-Power Driver

Poster presented at the 2020 ZNetUS conference

The Generation of Magnetized Jets Using 3D Printed Loads on a Pulsed-Power Driver

Poster presented at the 2019 APS Division of Plasma Physics conference

A Study of Magnetized Jet Stability Using High Energy Density Plasmas

Talk given at the 2019 Pulsed Power and Plasma Science conference

A Study of Magnetized Jet Stability Using High Energy Density Plasmas

Poster presented at the 2019 Women in Space conference

A Study of Disk-Jet Transitions Using Pulsed-Power Generators

Poster presented at the 2018 APS Division of Plasma Physics conference

TEACHING

Computational Research Access NEtwork (CRANE)

Dec 2021 - present

Curriculum developer, lecturer, teaching assistant

- Co-developed lessons and program structure for python-based computational methods workshop for undergrad level
- Assisted students with practice problems in lectures taught by other instructors
- See <https://compmethods0.wixsite.com/computationalmethods>

Center for Matter at Atomic Pressures (CMAP) Summer School

August 2021

Lecturer

University of Rochester

- Led 3 hour workshop on simulating a simple accretion-to outflow system in 2D MHD with python

Gourdain lab summer high school internship

August 2020, July 2021

Program lead, graduate mentor

University of Rochester

- Developed and implement month-long high school internship with other members of Gourdain lab
- Developed and taught three-day introductory Python course
- Mentored small group of high school students through experimental laser interferometry project

PHY 122P (Electricity & Magnetism), PHY 121P (Mechanics)

August 2018 - May 2019

Graduate Teaching Assistant

University of Rochester

- Head TA for two semesters of flipped-classroom undergraduate introductory physics courses. Worked one-on-one teaching students, graded exams, met with students needing guidance

AST 307 (Intro Astronomy)

Fall 2017

Undergraduate teaching assistant

University of Texas at Austin

- Provided in-class assistance for students
- Shared grading of assignments and exams with graduate TA

Freshman Research Initiative*Peer Mentor*

January 2016 - May 2016

UT Austin

- Led students in research project with MESA stellar evolution code
- Helped teach students Python coding and other astronomy research tools

Algebra and Precalculus tutoring*Volunteer tutor*

Fall 2014-Spring 2018

Gonzalo Garza High School

- Volunteered 2-3 hours per week tutoring high school math

AWARDS & HONORS

APS CUWiP Research Poster Award

Jan 2018

Barry Goldwater National Scholarship-Honorable Mention

Spring 2017

APS CUWiP Research Poster Award

Jan 2017

Kemp-Forman Memorial Endowed Presidential Scholarship

Fall 2016-Spring 2017

Merner Scholarship in Natural Sciences

Fall 2016-Spring 2017

Darrell W. Moffitt, Jr. Endowed Presidential Scholarship

Spring 2016

Walter E. Millet Scholarship

Fall 2015-Spring 2016

National Instruments Endowed Scholarship for Excellence

*Fall 2015-Spring 2016***LEADERSHIP**

Physics & Astronomy Graduate Student Association*Board Member, President*

August 2019 - present

University of Rochester

- Conducting events for career development, outreach, and community building among physics graduate students
- Assisted the department's Graduate Admissions Committee with recruiting weekend for admitted students
- Currently serving as a student representative on the department's Diversity, Equity and Inclusion committee

Graduate Women in Physics & Astronomy*Board Member*

October 2018 - present

University of Rochester

- Organizing mentorship and community among women graduate students in physics

Undergraduate Women in Physics*Treasurer, Vice President, President, Senior Board Member*

August 2014 - May 2018

UT Austin

- Mentored and provided resources to fellow undergraduate women in physics and astronomy

Dean's Scholars Honors Program*Council Member*

August 2014-May 2016

UT Austin

- Coordinating with team of 10 students responsible for planning social and mentoring events