

EDUCATION

- **PhD Candidate in Astrophysical and Planetary Sciences:** University of Colorado, Boulder
- **2018 MS in Astrophysical and Planetary Sciences :** University of Colorado, Boulder
- **2015 BS in Physics, Astrophysics Concentration:** Georgia Institute of Technology, ΣΠΣ.

SCIENTIFIC INTEREST

- **Science:** The Middle Corona. Solar wind acceleration and heating. Space Weather Prediction. Non-equilibrium ionization in the Corona. Polar plumes.
- **Techniques:** Imaging and spectroscopy in optically thin media. Understanding systemic measurement errors. Working on mission teams to analyze fresh data. Radial Graded Filters. Fourier Analysis.

RESEARCH EXPERIENCE

- **PUNCH Mission Associate Investigator** with *Dr. Sarah Gibson, HAO* (2021-Present)
 - Wrote forward model in IDL to simulate image data
- **Graduate Research Assistant** for *Dr. Steven Cranmer, CU Boulder* (2016-Present)
 - Line of Sight Effects in the Corona, Employed by LASP
- **Undergraduate Research Assistant** for *Dr. Rick Trebino, GA Tech* (2013-2015)
 - Ultrafast laser pulse measurement and characterization.
- **Researcher at Heliophysics REU** at *University of Alabama in Huntsville* (2014)
 - Reduced Voyager UV Spectrometer Data in C.

PUBLICATIONS

- **Gilly, C. R., & Cranmer, S. R.** (2020). The Effect of Solar Wind Expansion and Nonequilibrium Ionization on the Broadening of Coronal Emission Lines. *The Astrophysical Journal*, 901(2), 150. <https://doi.org/10.3847/1538-4357/abb1ad>
- Fayock, B., Zank, G. P., Heerikhuisen, J., **Gilbert, C. R.**, & Scherer, K. (2015). Lyman-alpha radiation pressure in the heliosphere: Results from a 3D Monte Carlo radiative transfer simulation. *Journal of Physics: Conference Series*, 642(1), 012007. <https://doi.org/10.1088/1742-6596/642/1/012007>

PROPOSAL EXPERIENCE

- **George Ellery Hale Graduate Fellowship** (CU Boulder, 2017)
- PI for Mock Proposal for **Space Mission Design** Class Project (CU Boulder, 2015)
- PI for Mock Proposal for **Physics of Planets** Class Project (GA Tech, 2014)

LEADERSHIP AND SERVICE

- **Student Representative** for the *AGU Fall Meeting* (2020-Present), SPA Section
- **Student Representative** for the *SHINE Conference* (2020-Present)
- **Graduate Event Planner & Coordinator** for the *SHINE Conference* (2017-Present)
- **Graduate Admissions Committee Member** at *CU Boulder* (AY2018)
- **Comprehensive Exam Committee Member** at *CU Boulder* (AY2017)
- **Observatory Committee Chair** at *CU Boulder* (AY2016)
- **Secretary + Event Planner** of the *Society of Physics Students* at *GA Tech* (AY2014)
- **FIRST Robotics Team Captain** at *Lumpkin County High* (2006-2009)

OUTREACH AND VOLUNTEER WORK

- **Production Manager and Public Talk Facilitator** at *Fiske Planetarium* (2018-2022)
- **Public Speaker** (2018 – Present)
 - Fiske Planetarium; Boulder, CO; (2018-Present)
 - WesterCon / Myths and Legends Convention; Denver, CO (2018-2019)
- **Public Observatory Host** (2013-Present)
 - Sommers-Bausch Observatory at CU (2015-Present)
 - GA Tech Observatory (2013-2015)
- **Public Outreach Author, Host, Trainer** (2013-Present)
 - *Boulder Jr Astronauts* (2018-2019)
 - *Spark, Spin, and Freeze*, Georgia Tech (2013-2015)

TEACHING EXPERIENCE

- **Instructor of Record** - *ASTR 1000 The Solar System*, CU Boulder (Summer 2018)
- **Instructor & Facilitator** - *ISEE Professional Develop. Program* (2017, 2018)
- **Instructor** - *CU Boulder Junior Astronauts: Elementary Afterschool Program* (2018)
- **Teaching Assistant** - *ASTR 2000 Ancient Astronomies*, CU Boulder (Sp2018)
- **Teaching Assistant** - *Accel. Intro Astronomy I + II w/ Lab*, CU Boulder (Fa2015, Sp2016)
- **Teaching Assistant** - *Modern Optics*, GA Tech (Fa2014)
- **Lead Camp Counselor** - *Roller Coaster Physics Summer Camp*, GT Physics (Summer 2015)
- **Tutor** - *Physics + Matlab*, Center for Academic Success, GA Tech (2013, 2015)

CERTIFICATIONS AND AWARDS

- **Nominated for Graduate Student Leader of the Year Award** – U. Colorado (2021)
- **Certificate in College Teaching** – University of Colorado (In Progress)
- **Completion of Professional Development Program** – ISEE (2017,2018)
- **Completion of Heliophysics Summer School** – UCAR (2017)
- **TA of the Year Award** – Astrophysics Department, University of Colorado (2016)
- **Letter of Commendation for SSF Outreach** – Physics Department, Georgia Tech (2015)

CONFERENCE ATTENDANCE

➤ 2021

- AGU Fall Meeting (Virtual)
- PUNCH Meeting 2 (Virtual)
- SHINE (Virtual)
- AAS SPD (Virtual)
- Heliophysics 2050 (Virtual)
- Space Weather Workshop (Virtual)
- SDO Science Workshop (Virtual)

➤ 2020

- AGU Fall Meeting (Virtual)
- AAS SPD (Virtual)
- NSRC Suborbital (Broomfield, CO)
- Michael Knoelker Symp. (Boulder, CO)
- DKIST Workshop (Los Angeles, CA)

➤ 2019

- AGU Fall Meeting (San Francisco, CA)
- SHINE (Boulder, CO)
- AAS + SPD (St. Louis, MO)

➤ 2018

- AGU Fall Meeting (Washington, DC)
- Polar Perspectives (Boulder, CO)
- SHINE (Cocoa Beach, FL)
- AAS (Denver, CO)
- ISEE PDP (Monterey, CA/ Houston, TX)

➤ 2017

- UCAR Helio Sum. School (Boulder, CO)
- SHINE (Saint-Sauveur, Quebec)
- ISEE PDP (Monterey, CA/ Maui, HI)

➤ 2016

- Solarnet 5 (Belfast, N. Ireland)
- SHINE (Santa Fe, NM)
- AAS SPD (Boulder, CO)

➤ 2014

- AGU Fall Meeting (San Francisco, CA)
- Solar REU, NSSTC (Huntsville, AL)
- APS April Meeting (Savannah, GA)

CONFERENCE ACTIVITIES

➤ Invited Talks

- “Forward Modelling as a Tool for Analyzing PUNCH Data.”
PUNCH 2 Meeting. 2021 Aug 9-11th. Virtual. (C. Gilly, S. Cranmer, S. Gibson)
- “Introduction to the GHOSTS Research.”
Middle Corona Monthly. 2021 July 30th. Virtual. (C. Gilly)

➤ Invited Panels

- “Community in Heliophysics”
Helio2050 Conference. 2021 May 7th. Virtual.
- “Diversity, Equity, and Inclusion in NASA Helio Early Career Scientists”
NASA EC Roundtable w/ Nicky Fox. **2021**, May 20th & June 1st. Virtual.

➤ Sessions Organized

- “SPA General Submissions II”
APS Fall Meeting. 2021, Virtual. (C. Gilly)
- Student Day and Grad Student Hospitality Suite
SHINE Conference. 2021 & 2022, Virtual & Honolulu, HI

CONFERENCE ACTIVITIES (CONTINUED)

➤ Submitted Talks

- "Space Weather Education at the University of Colorado Boulder."
NSRC Conference. 2020 March 2-4; Broomfield, CO. (C. Gilly, S. Cranmer, T. Berger, D. Knipp, J. Thayer)
- "Line of Sight Effects of Non-Equilibrium Ionization on Coronal Spectral Lines."
SHINE Conference. 2019 August 11; Boulder, CO. (C. Gilbert, S. Cranmer)
- "Quantifying line-of-sight effects for spectroscopic measurements of Alfvén waves and turbulence in the solar corona."
SOLARNET 5. 2016 Aug 23-31; Belfast, Northern Ireland. (C. Gilbert, S. Cranmer.)

➤ Poster Presentations

- "Middle Corona Poster"
Helio2050. 2021 May 3-7; (D.B. Seaton et. al., C.R. Gilly)
- "The PUNCH Associate Investigator (AI) Program."
Helio2050. 2021 May 3-7; (R. Attie et. al., C.R. Gilly)
- "Solar Wind and Line of Sight Effects Broaden Coronal Spectral Lines."
AAS SPD 51. 2020 Aug 20; Virtual. (C. Gilly, S. Cranmer)
- "The Effect of Non-Equilibrium Ionization, Resonant Scattering, and the Solar Wind on the Broadening of Coronal Emission Lines".
AGU Fall Meeting. 2019 Dec 8-13; Washington, D.C. (C. Gilbert, S. Cranmer)
- "Interpreting Off-Limb Emission Lines from Polar Coronal Holes. "
SHINE Conference. 2019 Aug 8-11; Boulder, CO. (C. Gilbert, S. Cranmer)
- "Forward Models of Off-Limb Emission Lines in Solar Coronal Holes."
AAS Conference. 2019 Jun 9-13; St. Louis, MO. (C. Gilbert, S. Cranmer)
- "Refinement of a Semi-Empirical Model to Understand Spectroscopic Indications of Alfvén Waves in the Solar Corona."
AGU Fall Meeting. 2018 Dec 10-14; Washington, D.C. (C. Gilbert, S. Cranmer)
- "Modeling Spectroscopy to Understand Alfvén Waves and Turbulence in the Solar Corona."
SHINE Conference. 2018 Jul 29- Aug 3; Cocoa Beach, FL. (C. Gilbert, S. Cranmer)
- "Relating Spectroscopic Measurements of the Solar Corona to Alfvén Waves & Turbulence."
SHINE Conference. 2017 Jul 24-28; Saint-Sauveur, Quebec. (C. Gilbert, S. Cranmer)
- "The reduction of Lyman alpha data from Voyager." (REU Project)
AGU Fall Meeting. 2014 Dec 15-19; San Francisco, CA. (B. Fayock, J. Heerikhuisen, C. Gilbert)

OTHER SKILLS

➤ **Computer Experience:**

- Languages: python, IDL, MATLAB, LaTeX, C
- Software: SolarSoft, Sunpy, Zemax, IGOR, EAGLECAD, Mathematica, MS Office
- Solar Data: imagery, spectroscopy, polarimetry
- Research: forward models, inversions, PDEs

➤ **Extracurricular Skills and Experience:**

- [Theatrical Experience](#) (15+ years)
 - Performed in 27 plays, half of them musicals.
 - Designed and ran stage sound and lights.
- [Music Production Experience](#) (10+ years)
 - Fluent in Ableton, FL Studio, Audacity
 - Piano, Alto Sax, Harmonica, Guitar, Bass, and Ukulele, plus Vocals.
- **Event Planning and Coordinating**
 - Organized SHINE Student Day and midweek excursions multiple times
 - Facilitated several multi-day out-of-state excursions for the SPS at GaTech
 - Served on executive committees of AGU and SHINE for two years as student rep

PROFESSIONAL MEMBERSHIPS

- Lifetime, ΣΠΣ: Sigma Pi Sigma Honor Society
- 2017-21, AAS: American Astronomical Society
- 2014-21, AGU: American Geophysical Union
- 2014-16, SPS: Society of Physics Students
- 2014-15, APS: American Physical Society
- 2015, OSA: The Optical Society