William H. Ashfield IV

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Appointments

2019-Present *Graduate Research Assistant*, Montana State University Physics Dept.
Advisor: Dana Longcope
2018-2019 *Graduate Teaching Assistant*, Montana State University Physics Dept.

Education

2021 M.S. in Physics, Montana State University
2017 B.A. in Physics, Reed College

Areas of Specialisation

Numerical Modeling - Data Analysis
Solar Flares - Chromosphere
Scientific Programming and Simulation

Research Experience

Present Modeling the effects of Alfvén wave induced turbulence on flare heating, chromospheric condensation, and long-duration coronal EUV emission

2020-2021 Forward modeling of IRIS observations using synthetic Si IV 1402.77 Å emission spectra created from data-driven simulations

2019-2020 Modeling of downflows seen in the solar atmosphere during flares using one-dimensional hydrodynamic simulations of coronal loops

2016-2017 Undergraduate Thesis, *Reduced Simulations: A technique for $\gamma - \gamma$ angular correlation analysis*. Developed an novel analysis technique to reduce the amount of time necessary to extract angular correlation coefficients from nuclear decay measurements using the GRIFFIN spectrometer at the TRIUMF facility in Vancouver, Canada. Read it here.

Publications & Conference Proceedings

Refereed articles

2022 **W. Ashfield IV** & D.W. Longcope, "A Model for Gradual Phase Heating Driven by MHD Turbulence in Solar Flares", In preparation for *ApJ*

2022 **William Ashfield IV**, Dana W. Longcope, Chunming Zhu, and Jiong Qiu, "Connecting Chromospheric Condensation Signatures to Reconnection Driven Heating Rates in an Observed Flare", *ApJ*
https://doi.org/10.3847/1538-4357/ac402d.

2021 **W. H. Ashfield** & D.W. Longcope "Relating the Properties of Chromospheric Condensation to Flare Energy Transported by Thermal Conduction", *ApJ*
https://doi.org/10.3847/1538-4357/abedb4.

2019 J. K. Smith, A. D. MacLean, **W. Ashfield**, A. Chester, A. B. Garnsworthy, C. E. Svensson, "Gamma-gamma angular correlation analysis techniques with the GRIFFIN spectrometer", *NIM A*
https://doi.org/10.1016/j.nima.2018.10.097.

2019 A. B. Garnsworthy, C. E. Svensson, M. Bowry, R. Dunlop, A. D. MacLean, B. Olaizola, J. K. Smith, F. A. Ali, C. Andreoiu, J. E. Ash, **W. H. Ashfield**, G. C. Balle, et. al., "The GRIFFIN Facility for Decay-Spectroscopy Studies at TRIUMF-ISAC", *NIM A*
https://doi.org/10.1016/j.nima.2018.11.115.

Conference Presentations

2021 William Ashfield, Dana Longcope, Chunming Zhu, and Jiong Qiu "Connecting Chromospheric Condensation Signatures to Reconnection Driven Heating rates in an X1.0 Flare", AGU Fall Conference, New Orleans, Louisiana

2020 William Ashfield and Dana Longcope "Characterizing Chromospheric Condensation from Shocks Driven by Thermal Conduction", AGU Fall Conference (Virtual)

Poster Presentations

2021 William Ashfield, Dana Longcope, Chunming Zhu, and Jiong Qiu "Connecting chromospheric condensation signatures to reconnection driven heating rates in an X1.0 flare", AAS/Solar Physics Division Meeting (Virtual) See it here.

2021 William Ashfield, Dana Longcope, Chunming Zhu, and Jiong Qiu "Connecting chromospheric condensation signatures to reconnection driven heating rates in an X1.0 flare", SolFER Spring Meeting (Virtual) See it here.

Conference Activities

2021 Session Co-chair - Solar Flare Onset and Energy Release II Oral, AGU Fall Conference, New Orleans, Louisiana

Workshops

2022 5nd NCSP DKIST Data-Training Workshop, NSO, Virtual
2021 4nd NCSP DKIST Data-Training Workshop, NSO, Virtual
2020 2nd NCSP DKIST Data-Training Workshop, NSO, Cal State Northridge
2020 Heliophysics Summer School, UCAR, CU Boulder

Projects

Present PyPREFT - rewriting and expanding the numerical simulation code developed by Longcope and Klimchuk for efficiency and integration with scientific Python.
2017 US Elections Data Visualization App - Assisted Dr. Michael McDonald with the US Elections Project Team in creating automated election demographic visualizations.

Work

2015-2017 *Science Educator*, Oregon Museum for Science and Industry
2015-2017 *Grader*, Reed College Physics Dept.
2015-2017 *Tutor*, Reed College Dorothy Johansen House for Academic Support Services

Skills

Languages

Fluent: IDL, Python, Wolfram Mathematica, Unix/Bash, LaTeX
Proficient: C/C++, R
Familiar: MySQL, HTML5/CSS3

Updated: May 16, 2022