Guangwei Fu

Department of Astronomy
University of Maryland-College Park
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Research Interests Exoplanet atmospheric characterization from ultra-hot Jupiters to rocky planets
Statistical comparative exoplanetology

Education

University of Maryland - College Park
Ph.D. in Astronomy, August 2017 - Summer 2022
Advisor: Drake Deming

University of Wisconsin - Madison
B.S. in Engineering Mechanics, May 2017
B.S. in Astronomy - Physics, May 2017

Research Experience

Graduate Research Assistant Jun 2017 - Present
University of Maryland - College Park, MD

Summer Research Student Jul 2016 - Aug 2016
Academia Sinica Institute of Astronomy and Astrophysics, Taipei, Taiwan

Undergraduate Research Assistant Oct 2014 - May 2017
University of Wisconsin - Madison, WI

Teaching Experience

University of Maryland, Teaching Assistant Aug 2017 - May 2018
ASTR 230 Science & Fiction of Planetary Systems

University of Wisconsin, Grader Fall 2015 - Spring 2016
ASTRO 103 The Evolving Universe: Stars, Galaxies, and Cosmology

Publications

Strong H_2O and CO emission features in the spectrum of KELT-20b driven by stellar UV irradiation
Fu, G., Sing, D., Lothringer, J., et. al., 2022, ApJL 925 L3

The Hubble PanCET program: Emission spectrum of hot Jupiter HAT-P-41b
Fu, G., Sing, D., Deming, D., et. al., 2022, AJ 163 190

The Hubble PanCET program: Transit and Eclipse Spectroscopy of the Hot Jupiter WASP-74b
Fu, G., Deming, D., May, E., et. al., 2021, AJ, 162, 271

The Hubble PanCET program: Transit and Eclipse Spectroscopy of the Strongly Irradiated Giant Exoplanet WASP-76b
Fu, G., Deming, D., Lothringer, J., et. al., 2021, AJ, 162, 108

Statistical Analysis of Hubble/WFC3 Transit Spectroscopy of Extrasolar Planets
Fu, G., Deming, D., Knutson, H., Madhusudhan, N., Mandell, A., Fraine, J., 2017, ApJL, 847, L22

UV Exoplanet Transmission Spectral Features as Probes of Metals and Rainout
Lothringer, J., **Fu, G.**, Sing, D., Barman, T., 2020, ApJL, 898, L14

Near-Infrared High-Resolution Imaging Polarimetry of FU Ori-Type Objects: Towards A Unified Scheme for Low-Mass Protostellar Evolution
Takami, M., **Fu, G.**, Baobab, Liu H., Karr, J., Hashimoto, J., et al., 2018, ApJ, 864, L20

Accepted proposals and grants

PI HST Cycle 28 (GO 16307) 'A' Gap: Exploring the new parameter space of ultra hot Jupiters around A-type host stars (**20 orbits $128,912**)
PI HST Cycle 27 (GO 15969) Exploring the relation between aerosol formation and temperature with the TESS hot-Neptune HD 219666b (**24 orbits $112,623**)
Co-PI KECK 2022A A detailed study of atmospheric escape on the best new planet for helium observations (**1 night**)
PI LDT 2019B High resolution transmission spectroscopy study of hot-Jupiter atmospheres using EXPRES (**3 nights**)
PI LDT 2020B Probing the thermal structure of the hottest exoplanet KELT-9b (**3 nights**)
PI SMA 2016A CO mapping of IC10 (**6 hours**)

Co-I (PI Zafar Rustamkulov) HST Cycle 29 (GO 16695) Cloudy mornings and clear afternoons: mapping atmospheric dynamics at the limbs of an exceptional hot Saturn (**23 orbits**)
Co-I (PI Drake Deming) JWST Cycle 1 (GO 1633) A Deep Molecular Survey of HD 189733b (**39.6 hours ∼$70k**)
Co-I (PI Jacob Bean) JWST Cycle 1 (GO 1633) Unlocking the Mysteries of the Archetype Sub-Neptune GJ1214b with a Full-Orbit Phase Curve (**49.5 hours**)
Co-I (PI Eliza Kempton) JWST Cycle 1 (GO 1935) Unshrouding the Sub-Neptune Population: The Case of TOI-421b (**11 hours**)
Co-I (PI Peter Gao) JWST Cycle 1 (GO 2454) Unveiling the Nature of the Impossible Planets (**15 hours ∼$70k)**
Co-I (PI Jessica Spake) JWST Cycle 1 (GO 2594) The twin paradox: assessing planetary radius evolution with a CH4 thermometer (**16.6 hours**)
Co-I (PI Ralf Kotulla) WIYN 2016A Exploring the (extra-)galactic background along lines-of-sight to nearby exoplanet host star candidates (**10 nights**)

Talks

A study of hot Jupiter atmospheres and the connection to their host stars
Carnegie EPL astronomy seminar, April 1st, 2022

A study of diverse exoplanet atmospheres from hot Jupiters to hot Neptune
Indiana University Astronomy Lunch Talk Series, April 30th, 2021

Detection of heavy metal and temperature inversion in ultra-hot Jupiter WASP-76b
Exoplanets III online, virtual, July 2020

Atmospheric characterization of TESS planet HD219666b
237th AAS meeting, virtual, Jan. 2021

Statistical Analysis of Hubble/WFC3 Transit Spectroscopy of Extrasolar Planets
229th AAS meeting, Washington, DC, Jan. 2018

Poster Presentations

Accelerated MCMC Atmospheric Retrieval of Exoplanets using Neural Network Regression
Fu, G., Ih, J., 235th AAS meeting, Honolulu, HI, Jan 2020

Differential polarization direct imaging of FU Ori type YSO
Fu, G., Takami, M., Scicluna, P., Karr, J., 229th AAS meeting, Grapevine, TX, Jan. 2017

Imaging exoplanets with the WFIRST Coronagraph: A background check of high priority targets
Fu, G., Turnbull, M., Gallagher, J., Kotulla, Ralf., Merrelli, A., L'Ecuyer, T., Hu., R.
227th AAS meeting, Kissimmee, FL, Jan. 2016

Service

HST Cycle 29 Executive Committee External Reviewer
HST Cycle 27 Mid-cycle Reviewer
Referee for Astronomy & Astrophysics, The Astrophysical Journal