Sal Wanying Fu

Contact Information

Email: wanying.fu@pomona.edu
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Education

B.A. Physics, Pomona College, Claremont, CA — May 2019
Overall GPA: 3.88

Coding Experience

Python, IRAF, R, Mathematica, MATLAB

Research Interests

Dynamical modeling of the Milky Way and its satellites
Cosmological context of MW dwarf galaxies and stellar populations

Research Experience

Observatories of the Carnegie Institution of Washington
Undergraduate Research Fellow — Jun 2016-Present
Advised by: Dr. Josh Simon, Dr. Gwen Rudie

The Dynamical Histories of the Crater II and Hercules Dwarf Galaxies — May 2018-Present

Using optical spectroscopy from the IMACS spectrograph to determine dark matter content and metallicity dispersion of Cra II dwarf galaxy. Modeled orbit of Cra II and Hercules to test tidal disruption hypotheses surrounding the two dwarf galaxies.

The Origin and Classification of the Sgr II Satellite — Apr 2018-Present

Using optical spectroscopy from the IMACS spectrograph to determine dark matter content and metallicity dispersion of Sgr II satellite. Modeling orbit of satellite to infer its possible origins.

The Origin of the 300 km/s Stream Near Segue 1 — Jun 2017-Aug 2018

Identified new members of the 300S stream in APOGEE-2 and SEGUE survey data. Used dynamical modeling techniques and chemical abundance analysis to infer the origin of the stellar stream. Work culminated in paper publication and poster presentation.

Chemical Abundances of UMi dSph in APOGEE — Jun 2016-Aug 2016

Identified systematic velocity variation in timeseries velocity data of very faint stars from the APOGEE-2 proto-DR14 reduction. Work culminated in poster presentation.

Pomona College Department of Physics and Astronomy
Undergraduate Research Assistant — Jan 2016-May 2016
Advised by: Dr. Philip Choi

Searching for NEOs Using Synthetic Tracking — Jan 2016-May 2016

Conducted remote observing program using the 1-meter telescope at Table Mountain Observatory to search for faint, near-earth asteroids.

Publications

S. W. Fu, J. D. Simon, et al. 2018. *Dynamical Histories of the Crater II and Hercules Dwarf Galaxies*, in prep. to be submitted to ApJ

S. W. Fu, J. D. Simon, et al. 2018. *The Origin of the 300 km s^{-1} Stream Near Segue 1*, ApJ, 866, 42

Presentations

S. W. Fu, J. D. Simon, et al. 2018. *Dynamical Histories of the Crater II and Hercules Dwarf Galaxies.* Anticipated poster presentation at 233rd AAS Meeting in Seattle, WA

J. D. Simon, **S. W. Fu**, et al. 2018. *The Nature of the Peculiar Milky Way Satellite Sagittarius II.* Anticipated poster presentation at 233rd AAS Meeting in Seattle, WA

Sobeck J., ... **S. W. Fu**, et al. 2018. *An Examination of the APOGEE-2 Survey Data for the Draco Dwarf Spheroidal Galaxy.* Anticipated poster presentation at 233rd AAS Meeting in Seattle, WA

W. Fu, J. D. Simon, et al. *Characterizing the 300 km/s Stream Near Segue 1*, Poster presentation at 231st AAS Meeting in Washington, D.C.

W. Fu, J. D. Simon, et al. *A Study of Low-Metallicity Red Giant Stars in the Ursa Minor Dwarf Spheroidal Galaxy Using APOGEE Survey Data*, Poster Presentation at the 229th AAS Meeting in Grapevine, TX

Awards

Inaugural FUTURE of Physics at Caltech Cohort	Nov 2018
Barry M. Goldwater Scholar, Barry M. Goldwater Scholarship and Excellence in Education Foundation	2018
Pomona College Scholar, Pomona College	Jun 2016-Present
Tileston Sophomore Physics Prize, Pomona College Department of Physics and Astronomy	Jan 2018
Moncrief Astronomy Prize, Pomona College Department of Physics and Astronomy	Sep 2016

Mentoring Experience

ASTR101: Observational Astronomy — Mentor & Lab TA	Fall 2018
ASTR51: Introductory Astronomy — Mentor	Spring 2018
ASTR101: Observational Astronomy — Mentor & Lab TA	Fall 2017
ASTR51: Introductory Astronomy — Mentor	Spring 2017
PHYS70: Spacetime, Quanta and Entropy — Mentor & Lab TA	Fall 2016
ASTR2: Galaxies and Cosmology — Lab TA	Spring 2016

Service

Physics Department Liaison	Jan 2016-Present
Physics Cohort Program Organizer	Jan 2016-Present
Community Partnership With Fremont Academy Femineers	Mar 2018-May 2018
Social Justice in STEM Reading Group Co-Organizer	Jan 2017-May 2017

Professional References

Dr. Joshua D. Simon
Staff Scientist, Carnegie Observatories
jsimon@carnegiescience.edu

Dr. Gwen C. Rudie
Staff Scientist, Carnegie Observatories
gwen@carnegiescience.edu

Prof. Jorge Moreno
Assistant Professor, Pomona College
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Prof. Philip Choi
Associate Professor, Pomona College
philip.choi@pomona.edu