Maryum Sayeed

0000-0001-6180-8482 NASA ADS ~/maryumsayeed.github.io

Education

Columbia University 2021 – Present
PhD in Astronomy (Advisor: Melissa K. Ness)

- MPhil in Astronomy (2024), MA in Astronomy (2023)
- LSSTC Data Science Fellow 2021 – 2023
- National Osterbrock Leadership Fellow 2021 – 2023

University of British Columbia 2015 – 2020
B.Sc in Honors Physics & Astronomy

Grants, Awards, & Honors

NSERC Canada Graduate Scholarship, Government of Canada (*63k CAD*) 2022 – 2025
National Osterbrock Leadership Fellowship, AAS (*4k USD*) 2021
LSSTC Data Science Fellowship, LSSTC 2021
Columbia University Graduate Fellowship, Columbia University 2021 – 2026
Trottier Excellence Grant, Institute for Research on Exoplanets (*6k CAD*) 2018
Choquette Family Foundation Global Award (declined), UBC (*10k CAD*) 2018
BSc with Distinction, University of British Columbia 2020
Dean's Honour List, University of British Columbia 2020
Dean's Honour List, University of British Columbia 2019
Rhodes Scholar (nominated), University of British Columbia 2019

Publications

First Author: 6 first-author publications with 40 citations

1. **M. Sayeed**, A. R. Casey, B. T. Montet, *et al.*, "Looking for Companionship: Radial Velocity Follow-Up of Lithium-Rich Giants with ESPRESSO", *Submitted to ApJ*
2. **M. Sayeed**, S. F. Yang, G. Cinquegrana, *et al.*, (2025), "Probing Binary Architectures of Lithium-rich Giants in GALAH with COSMIC and Stellar Models", ApJ, 991, 1, *Citations: 1*
3. **M. Sayeed**, D. Huber, A. Chontos, and Y. Li, (2025), "A Homogeneous Catalog of Oscillating Solar-type Stars Observed by the Kepler Mission and a New Amplitude Scaling Relation Including Chromospheric Activity", AJ, 170, 4, *Citations: 1*
4. **M. Sayeed**, R. Angus, T. A. Berger, *et al.*, (2025), "Exoplanet Occurrence Rate with Age for FGK Stars in Kepler", AJ, 169, 2, *Citations: 4*
5. **M. Sayeed**, M. K. Ness, B. T. Montet, *et al.*, (2024), "Many Roads Lead to Lithium: Formation Pathways For Lithium-rich Red Giants", ApJ, 964, 1, *Citations: 20*
6. **M. Sayeed**, D. Huber, A. Wheeler, and M. K. Ness, (2021), "The Swan: Data-driven Inference of Stellar Surface Gravities for Cool Stars from Photometric Light Curves", AJ, 161, 4, *Citations: 14*

Co–Author

7. Y. Lu, C. Manea, **M. Sayeed**, and S. D. Douglas, "Spectroscopic Follow-up of Young High-α Dwarf Star Candidates: Still Likely Genuinely Young"*, Submitted to AJ*
8. Y. Lu, I. L. Colman, **M. Sayeed**, *et al.*, (2025), "Evidence of Truly Young High-α Dwarf Stars", AJ, 169, 3*, Citations: 6*
9. M. N. Lund, S. Basu, A. Bieryla, *et al.*, (2024), "The K2 Asteroseismic KEYSTONE sample of Dwarf and Subgiant Solar-Like Oscillators. I. Data and Asteroseismic parameters", A&A, 688*, Citations: 8*
10. J. Tayar, J. K. Carlberg, C. Aguilera-Gómez, and **M. Sayeed**, (2023), "Lithium in Kepler Red Giants: Defining Normal and Anomalous", AJ, 166, 2*, Citations: 9*
11. S. Mathur, R. A. García, S. Breton, *et al.*, (2022), "Detections of solar-like oscillations in dwarfs and subgiants with Kepler DR25 short-cadence data", A&A, 657*, Citations: 29*
12. A. Chontos, D. Huber, **M. Sayeed**, and P. Yamsiri, (2022), "pySYD: Automated measurements of global asteroseismic parameters", The Journal of Open Source Software, 7, 79*, Citations: 40*

Telescope Time

Summary: 3 programs awarded as PI, total of 81 hours and 290k USD[1], and 2 as co-I

ESO VLT Phase 2 (ESPRESSO) → 27.0 hours PI 2025

Measuring binarity of lithium-rich red giants

Las Campanas Observatory, Magellan (MIKE) → 1.5 nights (co–I) 2025

A high precision analysis of lithium richness along the red giant branch

ESO VLT Phase 3 (ESPRESSO) → 27.1 hours PI 2024

Measuring binarity of lithium-rich red giants

ESO VLT Phase 2 (ESPRESSO) → 27.1 hours PI 2023

Measuring binarity of lithium-rich red giants

MDM McGraw–Hill (1.3m Telescope) → 5 nights (co–I) 2022

Photometric Confirmation and Ephemeris Refinement of TESS Planet Candidates

Advising

Madeline Maldonado Gutierrez, Columbia University (undergraduate) Jan 2025 – May 2025

Selina Yang, Columbia University → Cornell University May 2023 – Dec 2024

Forrest Weintraub, Columbia University (undergraduate) Sep 2023 – Dec 2023

Leah McGee-Gold, Columbia University (undergraduate) May 2022 – Aug 2022

Software

Lead Developer, The Swan → inference of stellar surface gravity via linear regression

Co–Developer, pySYD → automated measurements of global asteroseismic parameters

Talks

Contributed Talks

Testing Binarity of Lithium-Rich Red Giants → Cool Stars 2024 2024

Formation Pathways for Lithium-Rich Red Giants → GothamFest NYC 2023

Investigating the Effects of Axion Quark Nuggets using X-ray and Gamma-ray Observations → UBC 2020

Talks

Testing Binarity of Lithium-Rich Giants → Journal Club, STScI 2025

Testing Binarity of Lithium-Rich Giants → AstroCoffee, JHU 2025

Formation Pathways for Lithium–Rich Red Giants → Montet Group Meeting, UNSW 2023

Formation Pathways for Lithium–Rich Red Giants → G.A.S.P, Australian National University 2023

Glitch-PE: impact of glitches on parameter estimation of GW signals → LIGO Group Meeting 2020

Inference of Stellar Parameters Using Data-Driven Modelling → Institute for Astronomy UH 2019

Modelling multi-wavelength observations of IRS 48 → National Research Council of Canada 2019

Hunt for Solar Oscillations – K2 Observations of Uranus → Institute for Research on Exoplanets 2018

Teaching

Graduate Teaching Assistant, Columbia University

Spring 2023: Theories of the Universe (UN1610)

Fall 2022: Astronomy Lab I (UN1903)

Spring 2022: Earth, Moon & Planets (UN1403)

Fall 2021: Stars & Atoms (UN1836)

Undergraduate Teaching Assistant, University of British Columbia

Spring 2018 – Fall 2019: Energy & Waves (PHYS101)

Service

Graduate Mentorship Program → Coordinator 2022 – 2025

Colloquium Organizing Committee → Graduate Coordinator 2023 – 2024

Undergraduate/Graduate Mentorship Program → Mentor 2021 – 2025

Outreach

Astrobites → Author, Editor, Website Chair 2022 – 2024

Dec 2022: One Plot to Rule Them All!

Dec 2022: Honey, I Shrunk the Orbit!

Oct 2022: Astro Grads United

Jun 2022: To Gaia & Beyond!

May 2022: With Great Power Comes Great Asteroseismology

Apr 2022: Women's History Month: Dr. Burçin Mutlu-Pakdil

Mar 2022: Women's History Month: Dr. Munazza Alam

Jan 2022: Make it or Brake it

Skype A Scientist → Volunteer 2021 – 2025

UBC Astronomy Club → VP External 2015 – 2020

UBC Physics Society → VP Academic 2016 – 2017

Posters

Sayeed, M., Ness, M., Montet, B. "Formation Pathways for Lithium Enriched Red Giants in GALAH & TESS", July 2022

Sayeed, M., Huber, D., Chontos, A., "A Homogeneous Catalog of Kepler Solar-like Oscillators Observed in Short Cadence", TESS Science Conference II, Aug 2021 (online)

Chontos, A., **Sayeed, M.**, Huber, D., "`pySYD`: Automated Measurements of Global Asteroseismic Parameters", TESS Science Conference II, Aug 2021 (online)

Sayeed, M., "Data-Driven Inference of Stellar Surface Gravities for Cool Stars from Photometric Light Curves", American Astronomical Society Winter Meeting (237), Jan 2021

Sayeed, M., "The Gravity of Machine Learning: Using Linear Regression to Infer Stellar Surface Gravity", CASCA 2020, May 2020

Sayeed, M., "Inference of Stellar Parameters Using Data-Driven Modelling", American Astronomical Society Winter Meeting (235), Jan 2020