Khaled Al Moulla

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Education

2020 – 2024 **PhD in Astrophysics**, University of Geneva, Switzerland
Thesis: Solar-Type Activity in Optical and Near-Infrared Radial Velocities
Supervisor: Prof. Xavier Dumusque

2018 – 2020 **MSc in Physics: Astronomy**, Uppsala University, Sweden
Thesis: Advanced Characterization of Exoplanet Host Stars
Supervisor: Prof. Nikolai Piskunov

2015 – 2018 **BSc in Physics: Astronomy**, Uppsala University, Sweden
Thesis: Turbulence at MHD and Sub-Ion Scales in the Magnetosheath of Saturn
Supervisor: Dr. Lina Hadid

Instrumentation

Consortia

Since 2023 **Keck Planet Finder (KPF)**, Member of Science Team

Since 2023 **Near-InfraRed Planet Searcher (NIRPS)**, Member of Science Team

Proposals

2024 **INAF AOT49**, Co-Investigator, Telescope: TNG, Time: 16.0 h

2022 **ESO P111**, Co-Investigator, Telescope: VLT, Time: 33.3 h

Observations

2024 **ESO 3.6m Telescope**, HARPS & NIRPS, 7 nights

2021 – 2024 **Swiss Euler 1.2m Telescope**, CORALIE & NECAM, 44 nights

Teaching

Courses

2023 – 2024 **Astrophysics and Data Science**, Teaching Assistant
University of Geneva, Master's Level Course

Students

2023 – 2024 **Romain Eltschinger**, Co-Supervisor of Master's Thesis Project
Thesis: Synthetic Periodograms for the Bern Planetary Population Model

2023 **Fabrice Reymond**, Supervisor of Bachelor's Advanced Course Project
Project: Studying Solar Activity to Enhance Radial Velocity Exoplanet Detection

Service

2023 **JUnior Researchers' Assembly (JURA) IV**, Member of SOC/LOC
Planetary Science Conference, Participants: 47, Budget: CHF 32,000 ≈ USD 35,000

Since 2022 **DEI Group, Geneva Observatory**, Member of Committee

Scholarships

2020 **F. O. Törnlund Foundation**, SEK 26,000 ≈ USD 3,000

2018 – 2019 **A. & A. Löfberg Foundation**, SEK 100,000 ≈ USD 11,000

Talks

5 conferences, 3 science meetings, 3 invited seminar, 5 campus seminars.

Conferences

2023 **EPRV 5**, Hilton Beachfront Resort, Santa Barbara, US
Formation Temperature-Dependent Stellar Activity RVs Across Spectral Types

Sun-as-a-Star Workshop, Flatiron Institute, New York City, US
Which Spectral Segments are Optimal for Radial Velocity Extraction?

PoET Workshop, CAUP, Porto, PT
Understanding the Physics of Stellar Activity at the Spectral Level

2022 **JURA III**, Hotel Meielisalp, Leissigen, CH
Stellar Activity Indicators with Solar Observations

GPRV Workshop, All Souls College, Oxford, UK
Radial Velocity Dependence on Line Formation Temperature

Science Meetings

2023 **NIRPS Science Team Meeting**, University of Montreal, Montreal, CA
HELIOS-NIRPS Initial Results

2022 **EPRV RCN Meeting**, Online
Stellar Signal Components seen in HARPS and HARPS-N Solar RVs

NCCR PlanetS Domain 2 Meeting, Online
Radial Velocity Dependence on Line Formation Temperature

Posters

2 conferences, 2 science meetings.

Conferences

2023 **Spectral Fidelity**, Istituto degli Innocenti, Florence, IT
NIRPS Sun-as-a-Star Observations

2022 **Cool Stars 21**, Pierre Baudis Centre, Toulouse, FR
Dependence of Solar Activity Signals on the Formation Temperature of Spectral Lines

Science Meetings

2023 **NCCR PlanetS Site Visit**, University of Geneva, Geneva, CH
Stellar Signals in HARPS and HARPS-N Solar Radial Velocities

2022 **NCCR PlanetS General Assembly 8**, Sunstar Hotel, Grindelwald, CH
Radial Velocity Dependence on Line Formation Temperature

Publications

A complete list is available on my ADS Public Library.

First Author

3. Al Moulla, K., Dumusque, X., & Cretignier, M., 2024, A&A, 683, A106
   Measuring precise radial velocities on individual spectral lines. IV.
   Stellar activity correlation with line formation temperature
2. Al Moulla, K., Dumusque, X., Figueira, P., et al. 2023, A&A, 669, A39
   Stellar signal components seen in HARPS and HARPS-N solar radial velocities
1. Al Moulla, K., Dumusque, X., Cretignier, M., et al. 2022, A&A, 664, A34
   Measuring precise radial velocities on individual spectral lines. III.
   Dependence of stellar activity signal on line formation temperature

Coauthor

6. Bourrier, V., Delisle, J.-B., Lovis, C., et al., submitted to A&A
   The ANTARESS workflow. I. Optimal extraction of spatially-resolved stellar spectra with high-resolution transit spectroscopy
5. Jones, M. I., Reinarz, Y., Brahm, R., et al., submitted to A&A
   A long-period transiting substellar companion in the super-Jupiter-to-brown-dwarf mass regime and a prototypical warm-Jupiter detected by TESS
4. Klein, B., Aigrain, S., Cretignier, M., et al., submitted to MNRAS
   Investigating activity-induced shape distortions in the absorption lines of the Sun
3. Palumbo III, M. L., Ford, E. B., Gonzalez, E. B., et al., submitted to AJ
   GRASS II: Simulations of Potential Granulation Noise Mitigation Methods
2. Siegel, J. C., Halverson, S., Luhn, J. K., et al., submitted to AJ
   Quiet Please: Tracing Anomalous Radial Velocity Variations with a Physically Motivated Spot Model
1. Zhao, L. L., Dumusque, X., Ford, E. B., et al. 2023, AJ, 166, 173
   The Extreme Stellar-signals Project. III. Combining Solar Data from HARPS, HARPS-N, EXPRES, and NEID