

Commission G5 Stellar and Planetary Atmospheres

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Commission G5 Working Groups

Div. G / Commission 5 WG Stellar Spectral Libraries

The scope of the work of the Commission includes theory and modeling of stellar and planetary atmospheres, as well as observational spectroscopic studies of these objects. The Commission tries to meld the work of theorists, modelers, and observers, particularly spectroscopists. A main objective is to address the issues of how to make theory more useful for observers, and how to make observations more powerful by judiciously using state-of-the art theoretical descriptions.

In-person activities in the 2021-24 triennium were considerably constricted by the Covid-19 pandemic travel restrictions. Some members of Commission G5 were able to attend the Division Days at the XXXI General Assembly, August 5 & 8, in Busan, Korea. For details see:

https://www.iau.org/science/scientific_bodies/divisions/G/meeting2022/

The commission is continuing to host a series of online seminars approximately once every two months. These seminars are recorded and kept available to enhance their impact. The work of deciding seminar topics and engaging speakers has been led by Katia Cunha, Daniela Korcakova, and Carlos Allende Prieto. The web host of the seminars is the Instituto de Astrofísica de Canarias, and recordings of the talks may be found at <http://iactalks.iac.es/talks/serie/28> .

Here are the G5 talks presented from 2021 through April 2024:

“The Revolution of Task-Based Computing, Applied to Stellar and Planetary Atmospheres” by Prof. Ake Nordlund; May 18, 2021

“ExoMolHD: Precision Spectroscopic Data for Studies of Exoplanets and other Hot Atmospheres”, by Dr. Sergey Yurchenko; July 20, 2021

“Exoplanetary Atmospheres”, by Dr. Nikku Madhusadhan, September 21, 2021

“Extreme Precision Stellar Spectroscopy”, by Dr. Dainis Dravins; November 23, 2021

“The GALAH survey: science goals and highlights to date”, by Dr. Sarah Martell; January 25, 2022

“Inelastic hydrogen collisions in stellar atmospheres”, by Dr. Paul S. Barklem; March 22, 2022

“Accelerating Computational Modeling via Neural Networks: Application to Exoplanet Atmospheric Retrieval/The first magnetic Helium-sdOs: which mergers are magnetic?”, by Michael Himes & Dr. Matti Dorsch, May 24, 2022

“A massive catalogue of ultracool dwarfs identified with LAMOST DR7”, by Dr. Youfen Wang; July 19, 2022

“Winds of Magnetic Massive Stars”, by Dr. Asif ud-Doula; September 20, 2022

“Transiting Giant Planet Atmospheres: Physics, Chemistry, and First JWST Observations”, by Dr. Jonathan Fortney; November 22, 2022

“Stellar chemical compositions with 3D non-LTE models”, by Dr. Anish Amarsi; January 24, 2023

“How White Dwarfs Get their Metals”, by Dr. Scott Kenyon; March 21, 2023

“A Gaia view of magnetic activity and rotation of low-mass stars:”, by Dr. Alessandro Lanzafame; May 23, 2023

“An irradiated-Jupiter analogue hotter than the Sun”, by Dr. Na’ama Hallakoun; September 26, 2023

“High-precision solar spectroscopy with the Göttingen FTS”, by Dr. Ansgar Reiners; January 24, 2024

“Exo-space weather: the impact of stellar activity and outflows on the escaping atmospheres of exoplanets”, by Prof. Aline Vidotto; March 19, 2024

The Commission helped to organize the Division G "Division Days" at the upcoming IAU General Assembly in August.