

Seminar/Talk

Seismic Probes of Stellar Evolution: Hot Subdwarfs and White Dwarfs in the PLATO Era

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Host: Astronomers

Compact pulsating stars, including hot subdwarfs and white dwarfs, provide powerful laboratories for investigating the late stages of stellar evolution through asteroseismology. Their pulsations offer a unique opportunity to probe the internal structure and constrain the physical processes governing their evolution. Their pulsation periods range from a few minutes to several hours, with amplitudes reaching up to 0.4 mag. These brightness variations can be detected and characterized through high-cadence, high-precision time-series photometry. Over the past decade, space missions such as Kepler/K2 and TESS have substantially advanced the field by providing extended, nearly continuous photometric observations. These data have enabled precise pulsation-frequency measurements and increasingly sophisticated asteroseismic investigations of stellar interiors, chemical stratification, core composition, rotation, and evolutionary history.In this review talk, I will discuss recent advances in the asteroseismology of pulsating hot subdwarfs and white dwarfs, highlighting key observational discoveries and developments in theoretical modelling. I will examine the complementary contributions of ground-based telescopes and space missions, with particular emphasis on the opportunities offered by PLATO. With dedicated observing time awarded to programmes targeting both hot subdwarfs and white dwarfs, PLATO will further advance the asteroseismic study of these two complementary populations. Its long-duration, high-precision photometry will enable systematic investigations of pulsation properties, improve constraints on stellar interiors, and provide new insights into stellar evolution and binary interactions. Combined with spectroscopy, Gaia astrometry, and theoretical modelling, these observations will help connect pulsation measurements to the physical processes shaping the evolution of compact stars. The talk will provide an accessible overview of the field and highlight how ongoing observations and future PLATO data will deepen our understanding of late stellar evolution.

Thursday, November 5, 2026 11:00am - 12:00pm
Mondi 2a+b, Central Building

This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station. Please find a schedule of the ISTA Shuttle on our webpage: https://ista.ac.at/en/campus/how-to-get-here/ The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.