

Das Institut für Physik
Fachbereich Astrophysik und Geophysik
lädt zu folgendem Vortrag
im Rahmen des **Astrophysikalischen Kolloquiums** ein:

Superflares on Sun-like stars and TRAPPIST-1

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Can superflares occur on the Sun, and if so, how often? One way to approach this is through a solar-stellar comparison. In this colloquium, I will present recent results from an analysis of 56450 Sun-like stars observed by the Kepler space telescope. Our analysis revises the occurrence rate of superflares for Sun-like stars and finds it to be a factor of 50 higher than previously thought. Connections between superflares and solar energetic particle events are then examined using a probabilistic approach. I will then discuss TRAPPIST-1, an ultracool dwarf and one of JWST's most frequently observed targets, where activity directly impacts exoplanet transmission spectroscopy. Using JWST observations, we find evidence for flare-driven transformations of the stellar surface, in particular the disappearance of dark magnetic features. JWST spectroscopic time series allow us to measure their spectra and estimate their temperatures. Finally, we combine ~87 hours of JWST spectroscopy with K2 photometry to constrain a unified flare-frequency distribution spanning four decades in energy, providing fresh insight into which events dominate the long-term flare energy budget.

Zeit/Time: **Wednesday, 25th March 2026, 16:00 Uhr s.t.**

Ort/Place: **Bibliothek Experimentalphysik (05-01-0122) 1. Stock**
Universitätsplatz 5, 8010 Graz

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