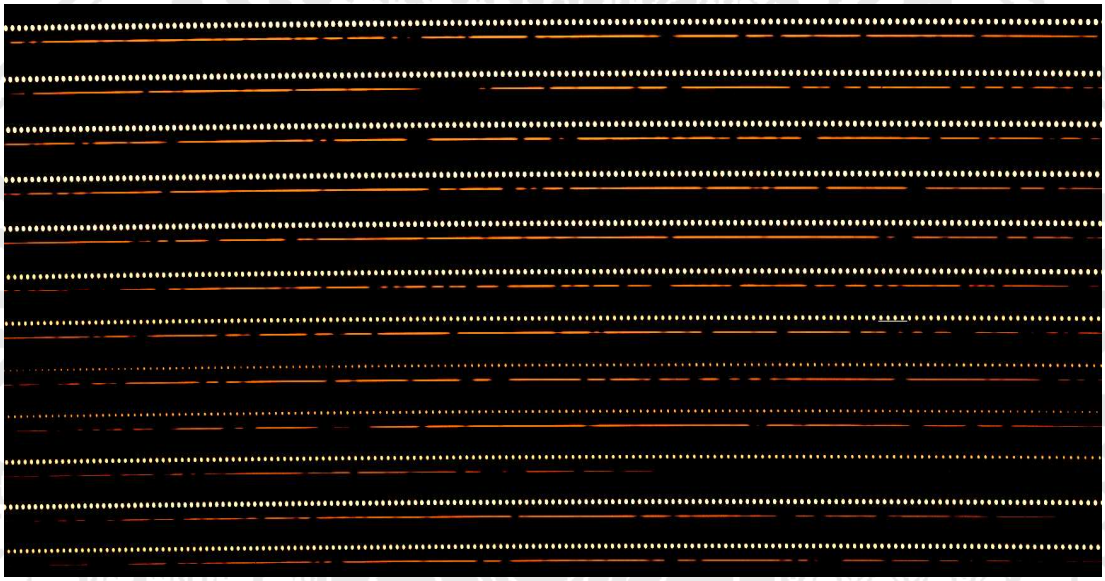
Physikalisches Institut
Fakultät für Mathematik und Physik
Albert-Ludwigs-Universität Freiburg

PHYSIKALISCHES KOLLOQUIUM

AM 22. APRIL 2013 UM 17 UHR C.T.

IM GROßEN HÖRSAAL



CALIBRATING ASTRONOMICAL DATA WITH A LASER FREQUENCY COMB

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GARCHING

The past years have seen the birth of precision spectroscopy in astrophysics. Today, the best spectrographs are limited in stability by their calibration light source. Laser frequency combs (LFCs) are the ideal calibrator for astronomical spectrographs provided that they cover the spectral bandwidth of the spectrograph with a line spacing that is adapted to the spectrograph's resolution. They emit a spectrum of lines that are equidistantly spaced in frequency and that are as accurate and stable as the atomic clock to which the LFC is stabilized.

With a demonstrated short term repeatability of 2.5 cm/s applications such as the detection of Earth-like planets or even measuring the cosmic acceleration in real time come into reach.