

INVESTIGATING THE MIR VARIABILITY OF THE PROTOPLANETARY
DISK OF DR TAU

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We investigate the variability of the brightness distribution and the changing density structure of the protoplanetary disk around DR Tau, a classical T Tauri star. DR Tau is known for its peculiar variations from the UV to the MIR. Our goal is to constrain the temporal variation of the disk structure based on photometric and MIR interferometric data.

We observed DR Tau with the MID-infrared Interferometric instrument (MIDI) at the Very Large Telescope Interferometer (VLTI) at three epochs separated by about nine years, two months, respectively. Using radiative transfer simulations, we fit the spectral energy distribution and MIR visibilities.

We are able to reproduce the spectral energy distribution as well as the MIR visibility for one of the three epochs (third epoch) with a basic disk model. Using the same disk model, but with a smaller scale height, allows us to reproduce the very different visibility curve obtained nine years earlier with a very similar baseline (first epoch). The same density distribution also reproduces the observation made with a higher spatial resolution in the second epoch, i.e., only two month before the third epoch.