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At the edge of many discoveries, VLTI/MATISSE the spectro-interferometer allows us to retrieve the spectrum in LM-band of exoplanets and brown dwarfs at low angular separation (down to 100 mas) and medium spectral resolution (R=506), for companions as faint as HR 8799 e a sub-mJy object (0.3 mJy). The spectral window offered by MATISSE enables us to detect water vapor, CH4 (methane) and CO lines. It helps refine the C/O ratio and determine the parameter of the companion such as the temperature, the surface gravity, and the mixing ratio. We propose to compare exoplanets and brown dwarfs spectra in the mid-IR with the MATISSE instrument to better understand the planet formation mechanism, physico-chemical processes at play in their atmosphere and the similarities between the two objects' type. In this framework, we will investigate the case of HD72986B and β Pic b.

Making new dusty and cloudy worlds accessible in the mid-IR spectral window.