



ID de Contribution: 22

Type: Oral presentation

## Direct detection of exoplanets with molecular mapping. Application to MIRI on JWST

*jeudi 11 février 2021 16:30 (15 minutes)*

Direct observation is the only way to constrain the physical properties of exoplanet atmospheres. In the case of long period planets, direct imaging is challenging as it requires to achieve very high contrasts. The current generation of instruments are reaching contrast performance that allows us to observe young giant planets (still warm hence bright) that are distant from their host star (to be less contaminated with the star's luminosity). In this context, the Mid-IR Instrument (MIRI) of the James Webb Space Telescope (JWST) due to launch in October 2021 is equipped with a Medium Resolution Spectrograph covering a large spectral range from 5 to 28 microns. At such wavelengths, the star to planet flux contrast is more favorable than in the near IR and provides access to molecular signatures that are relevant to characterize exoplanet atmospheres at a spectral resolution as large as 3500. We are investigating the feasibility to retrieve those molecules with a method called "molecular mapping" which is designed to disentangle spectrally and spatially the light from the star and that of the planet. We will present preliminary results of performance estimation based on simulations of JWST observations.

### Field

Planetology (including small bodies and exoplanets)

### Day constraints

**Auteur principal:** MÁLIN, Mathilde (LESIA)

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**Classification de Session:** Talk

**Classification de thématique:** Astrophysics