POSTER

ABSTRACT

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Complementing VLTI Observations of Young Stellar Objects with Herschel and ALMA

To understand the complex structure of young stellar objects, spatially resolved observations over a large wavelength range are required. The hottest material in the innermost disk regions can be best traced at near-infrared wavelengths, while the warm parts (several hundred Kelvin) of the disk are best studied in the mid-infrared. Such studies are possible with the currently available VLTI instruments AMBER and MIDI, which spatially resolve the disks down to several milli-arcseconds and provide information about the composition and distribution of the gas and dust due to their spectroscopic capabilities. However, the conclusions from current observations of disks suffer from the lack of reliable data in the far-infrared. This wavelength regime determines important properties, like the total mass, size, and the vertical structure of the disk. Photometry with Herschel leads to a more restricted SED. Another important ingredient for the models are the spatially resolved images that will become available with ALMA. These images provide the same spatial resolution as the maps derived from optical long-baseline interferometry, e.g., with the upcoming instrument MATISSE. ALMA allows to probe the coldest and densest disk regions to investigate the radial structure and kinematics of the dust as well as the dust chemistry.

On the poster we will show how the Herschel and ALMA data will help to further constrain our current radiative transfer models of young stellar objects. The predicted appearance of such a source at ALMA wavelengths will be shown. Once ALMA is in operation the modeled images can be confronted for the first time with spatially resolved far-infrared images. This comparison will help to improve the models and to complement our recent view.