POSTER

ABSTRACT

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Towards a complete census of the high-z ULIRGs with Herschel.

Although local ULIRGs contribute a very small fraction of the IR luminosity density, their cosmological importance increases with increasing redshift. Many of their fundamental properties though, still rely on indirect measurements, while there is evidence that methods of detecting high-z ULIRGs are strongly affected by selection biases.

I will present a detailed study of the far-IR properties of a sample of mid-IR selected z~2 star-forming dominated ULIRGs, based on Herschel PACS and SPIRE as part of the HERMES project. I will discuss how Herschel observations, i.e. -provide the means for a Td-unbiased study of high-z ULIRGs, -reveal a wide range of dust temperatures, suggesting a diversity of the physical mechanisms that trigger star-formation on the early universe -demonstrate that a large fraction of high-z ULIRGs are missed by current ground based (sub)mm surveys.

I will then extend to z~3, considering a sample of ULIRG Infrared Luminous Lyman Break Galaxies. I will first present a multi-wavelength view of the star-formation activity at z~3 and put constraints on the SFR of LBGs. Based on the large SFR of some LBGs though, it is somewhat surprising that there are only few examples of direct submillimeter detection for these galaxies, indicating that the far-IR properties are still unclear. Using PACS observations of GOODS-N as part of the PEP project, I will then present first insights into the far-IR properties for a sample of z~3 LBGs, i.e.

- Construct for the first time, the average SED of infrared luminous LBGs from UV to radio wavelengths

- Put constraints on the dust temperature of the population showing that LBGs are warmer than SMGs and observe for the first time the general LIR-Td trend seen in the local universe, for UV-selected galaxies at z~3

- Shed light on the marginal detection of LBGs in current sub-mm surveys.