

Project 17/2014: "**Modelling galaxies in the infrared and sub-mm wavebands: simulated maps for Herschel and ALMA**"

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Abstract:

This project is part of our aim to measure and understand the epoch of galaxy formation, the star formation histories and merger rates of young galaxies, the dependence on their environment, and their clustering properties. This requires the inclusion of a good model for dust production and evolution, and a method to produce simulated maps. The dust component of the galaxy population is modelled using GRASIL (Silva et al. 1998), which combines a chemical evolution code, a grid of integrated spectra of simple stellar populations (SSP) of different ages and metallicities, in which the effects of dusty envelopes around asymptotic giant branch (AGB) stars are included, and a radiative transfer code to compute the full SED for each galaxy, including the dust component. The input parameters for GRASIL, primarily being the (recent) star formation history, disk scale-length, cold gas mass and metallicity, come from the phenomenological galaxy formation model, and therefore determine the actual sub-mm flux for each source. Efficiently and effectively combining GRASIL with the galaxy formation code and three other codes (including Gadget-2 for the dark matter part) is the goal of this C2PAP project.