

Título/Title:

Dust as a probe of galactic environment

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Descrição/Description:

Galaxy-evolution is set by a mechanism of recycling between the stellar and interstellar medium (ISM) components. Moreover, galaxies are preferentially found in clusters, where the environment, through hydrodynamical and gravitational effects, can drastically modify the ISM distribution within galaxies. The first goal of this project is to investigate how the dust and gas distributions of a cluster galaxy are affected by the environment through the analysis of Far InfraRed data from two clusters: Virgo and Fornax.

Both clusters are close enough to allow a spatially resolved analysis which should shed light on the complex gas-recycling mechanisms that regulate galaxies evolution. The second part of the project is to detect and study the properties of background galaxies in the Virgo and Fornax fields. The number of sources observed as a function of brightness is a fundamental tool in astronomy and with the surveys of the Fornax and Virgo cluster we can first of all compare both distribution of sources to search for differences related to their evolutionary stage.

If we will find a significant difference this will be probably due to large scale structure and/or a different clustering in the two sky regions. Once joined the two catalogue we will proceed to a comparison with other observations, such as the H-ATLAS survey and the BLAST experiments. The catalogue will also discriminate between the number of counts predicted in different cosmological evolutionary models.

One of the key goal of Hershel Fornax Cluster Survey project is to determine the luminosity function for the galaxies that we observe in Fornax. The background galaxies in the point-source catalogues of the two projects can be cross correlated with large optical survey to find sources with known redshift. With this sample we can build a luminosity function for different bins of redshift. The goal in this case is to find an evolutionary track of the galactic evolution both for different morphological types, but also for different cluster environments.