# A Search for a Global Infrared Evolution of Debris Disks

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**Abstract**

The existence of nearly twenty spatially resolved Debris Disks (DD) around low mass stars, covering spectral types of central stars from A to M and ages from 8 Myr up to ~ 8 Gyr, furnish an excellent opportunity to investigate a global evolution of these real DD.

By using observed fluxes between 12 and 70 $\mu$m measured by Spitzer and IRAS for these resolved DD we obtained a new representation of them based on a diagram involving fluxes ratios. A single sequence of DD related to the stellar ages is obtained. Whereas DD of A to K type stars appear to follow a similar time sequence, DD of M stars follow a different superposed time sequence.

When DD candidates (non resolved) are included in this diagram, we found that they follow in general the same pattern distribution as the resolved ones. If we introduce in the same diagram, the distribution of protoplanetary disks, represented by the young classical T Tauri stars we found a completely different pattern as the DD. However there is a region where both populations are superposed, establishing a kind of "bridge" between them with ages from ~ 5 to ~ 10 Myr.

By means of a DD radiative transfer model (Wolf & Hillenbrand 2005) we characterize a global evolution of the emitting fine dust zones of the observed resolved DD up to 70 $\mu$m and analyze them case by case. Our evolution is represented by the imposing of a gradual increase of the inner disk radius. Among others, this kind of approach explains specially, the different observed behavior of DD of M type stars.