

Characterization of Circumstellar Dust in Members of Moving Star Groups

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Stars are formed in groups in the dense cores of molecular clouds. After birth, a star cluster suffers continual tidal pulls from passing giant molecular clouds, heating of disk crossing, as well as internal stellar evaporation, and eventually disintegrates, supplying the disk stellar population. Presently there are thousands of star clusters in the solar neighborhood, with dozens to thousands of member stars. Stars in a cluster cluster have the same age, distance, and chemical composition so provide a test platform for stellar evolution. A young star cluster, particular, offer the opportunity to diagnose how star formation and early evolution proceed.

Members of a recently dispersed system still share the same space motion and serve to decipher the transition phase of disk dispersal and planet formation. There are eight such young moving groups known so far, with ages between ~ 10 and ~ 100 Myr at a heliodistance of ~ 100 pc. My group has been working on the Beta Pictoris Moving Group, which is young (12 Myr), nearby (50 pc) and composed of 28 stellar systems, including the title member Beta Pictoris, famed for its planets, and planetary debris disk.

The summer student project is to conduct a feasibility study of using millimeter and submillimeter observations to detect and characterize circumstellar disks of the moving group members. These members are suitable southern sky targets and are bright because of their proximity.