Triggered Star Formation in a Turbulent ISM
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Non-symmetrical protoplanetary disks destroyed by UV photoevaporation

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Abstract. We have developed geometric disk models to study the circumstellar geometries by fitting the spectral energy distribution (SED) of T Tauri and Herbig Ae/Be stars. The simulations provide means to recognize the signatures of different disk structures, including the effects due to external UV photoevaporation.

Following Chiang & Goldreich (1997) and Dullemond *et al.* (2001), we used hydrostatic, radiative equilibrium models for passive, reprocessing flared disks. The grains in the surface of the disk are directly exposed to the radiation from the star and the interior of the disk is heated by diffusion from the surface. Adopting this two-layers disk structure, our disk model was improved in order to optimize the parameters estimated by using a calculation technique based on genetic algorithms presented by Bentley & Corne (2002).

In the present work, we apply the code to model the SED of protoplanetary disks, which have being destroyed by photoevaporation due to the presence of ionizing OB stars, as the example of Trapezium region in the Orion Nebula. We compare geometric disk characteristics and physical conditions evaluated by our method to those obtained to the "proplyds" studied by Scally & Clarke (2001), Robberto *et al.* (2002) and Smith *et al.* (2005), among others. We also conclude that the parameter estimation by genetic algorithms assures accurate and efficient calculations.

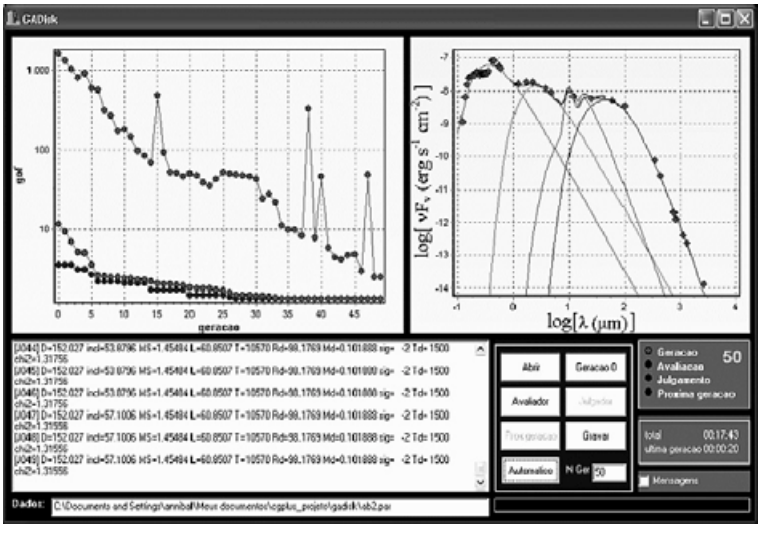

Figure 1. Fitting procedure sample session: the first panel shows the evolution of a solution; as the generation evolves, a best set of parameters is achieved. The right panel presents the SED for the best solution.

Keywords. ISM: Orion clouds, Stars: pre-main sequence, Method: genetic algorithms.

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