Poster 1 Murakami

Convective instability of self-similar gravitational collapse with radiative transfer

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Convective instability of spherical implosions of gaseous sphere under both self-gravity and radiative diffusion is investigated, where the diffusivity is modelled by a power-law with respect to density and temperature. The reduced two-dimensional eigenvalue problem is solved to show that there is a unique quantitative relation between the two physical effects for the self-similar motion. The resultant spatial and temporal behavior are determined also uniquely, once the opacity mechanism is specified. Persistent entropy emission via radiation plays an important role in the stability.