

Reaction-diffusion processes on scale-free networks

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The reaction-diffusion process of three species on scale-free networks is studied. The regular decay process can be derived from the deterministic rate equation of three species in the reaction-diffusion system. The particle density and the global reaction rate on scale-free networks are discussed numerically, and the global reaction rate before and after the crossover is also found, and the time-dependent global reaction rate scales as a power law in early and long time regimes. Our result is compared with a numerical calculation for regular and scale-free networks.

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