

ASTROPHYSICS SEMINAR SERIES

Spinning dust emission from circumstellar disks

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There has been recent progress toward measuring the fluctuations of the Cosmic Microwave Background in both intensity and polarization. In particular, the B-modes of the polarization fluctuation can provide the amplitude of the primordial gravitational modes. However characterizing CMB fluctuations, including the B-mode polarization is uncertain due to the foreground Galactic emission. Hence, studies models for the foreground emission to the CMB is of fundamental importance to understand the origin, structure, evolution, and density of the universe. The emission in the range less than 60 GHz is affected by the spinning dust. Hence, this emission carries necessary information on the fundamental properties of the circumstellar disks. In this talk, I will present physical modeling of the microwave emission from spinning polycyclic aromatic hydrocarbons from proto-planetary disks around Herbig Ae/Be stars and T-Tauri stars where PAH features are well observed. I will describe a model microwave emission from spinning nano-silicates.



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