

Gas and Dust in Debris Disks: Clues to the Late Stages of Planet Formation

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The basic character of debris disks was established soon after their discovery in the mid-1980's. These disks around nearby main sequence stars are composed of material (mostly dust) produced by collisions and/or evaporation of extrasolar asteroids and comets. However, fundamental observational questions about debris disks remain unanswered. How much material do debris disks typically contain and how does it evolve with time? What is the composition of their dust and gas? Are planets present or forming in the disks? Answers to these questions will provide insights into the late stages of planetary system formation and the origins of terrestrial planet atmospheres. In this talk, I will explain our current understanding of the place of debris disks in the planet formation process. Progress toward addressing the questions given above will be discussed, with emphasis on recent studies of the small but important gas component. Finally, I will outline the implications of debris dust for future efforts to directly image and characterize extrasolar terrestrial planets.