

Spitzer-Resolved Debris Disks around Solar-Type Stars

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The Spitzer Space Telescope has surveyed ~300 nearby solar-type stars for IR excess, with a detection rate of ~15%. Among these stars with circumstellar dust emission, we identify 11 as marginally resolved in their MIPS 70um images. Beyond the “Fabulous Four” discovered by IRAS, these are the only debris disks that have been spatially resolved by Spitzer. Several have independent evidence for disk extension, most notably the four disks previously resolved with the Hubble Space Telescope; the thermal emission observed by Spitzer matches these scattered light images in both size and position angle. For two additional systems, the Spitzer observations correctly predict these disk parameters, as confirmed by subsequent HST imaging. Overall, by resolving the thermal emission, we place constraints on the dust properties and on the orbital location of larger colliding planetesimals.