Coloring Debris Disks

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The scattered-light colors of debris disks derived from multi-wavelength observations of scattered light in the optical and near-infrared provide one avenue for determining the dust composition of debris disks. So far, to the best of our knowledge, the scattered-light colors are known for eight spatially-resolved debris disks. Four of them scatter red, two scatter blue and two scatter neutral or gray. We consider porous dust consisting of amorphous silicates of different iron contents, amorphous carbon of different DC conductivities, and tholin made from different initial mixing materials. These dust materials are expected to scatter starlight differently. We model simultaneously the scattered-light colors and the dust infrared emission spectral energy distributions of three debris disks: AU Mic, HD 32297, HD 92945.