ABSTRACT

We present new, high-resolution observations from the first phase of our ongoing campaign to discover debris disks, all with HST pixels and four times spanning a variety of M2.5 to M8.5 dwarfs by using PS1's red-light PSF-anchored multi-wavelength imaging technique. We report on our discovery of a significant offset of 4.9 ± 0.9 AU from the center of the AU Mic disk, which we interpret as a possible offset from the center of the AU Mic disk. This offset is consistent with the offset measured along the 0° to 180° scattering phase angles (right).

The disk SB profiles in both panels show mirror asymmetric surface brightness (SB) asymmetries (panel C) that cannot be explained by simple directionally scattering preferential (e.g., Henyey & Greenstein [H-G] 1941) by the disk grains.

The full spatial extent of the AU Mic disk (including one superimposed on it) are rejected as co-moving companions from non-common proper motion measures over two STIS epochs of observation.

Because of the extreme B-V redness of AU Mic (+1.44) small differences in the spectral output of our contemporaneously observed PSF template star can be seen. The disk SB profiles on both panels show mirror asymmetric surface brightness (SB) asymmetries (panel C) that cannot be explained by simple directionally scattering preferential (e.g., Henyey & Greenstein [H-G] 1941) by the disk grains.

The disk to a face-on viewing geometry (left; with major axis horizontal). Photometric surface brightness (SB) profiles are shown along the ring (asymmetric) and along the ring (symmetric). The disk flux distribution is shown along the ring (asymmetric) and along the ring (symmetric). The disk SB profiles in both panels show mirror asymmetric surface brightness (SB) asymmetries (panel C) that cannot be explained by simple directionally scattering preferential (e.g., Henyey & Greenstein [H-G] 1941) by the disk grains.

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