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The Benchmark Dust Mass Function of the Nearby Universe

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We present a fundamental measure of the dust content of nearby galaxies - the Dust Mass Function (DMF) for the largest sample of galaxies to date. Our DMF is drawn from a stellar mass selected sample of galaxies comprised of the overlap between two large area surveys - the Galaxy And Mass Assembly (GAMA), and the Herschel Astrophysical Terahertz Large Area Survey (H-ATLAS). The overlap between these surveys spans ~140 square degrees, and 21 wavebands, containing over 15,000 galaxies below redshift 0.1 that are observable in the r-band. This study is the most statistically robust measurement of the low-redshift DMF ever made, allowing us to probe at least an order of magnitude lower in dust mass than any survey before for a sample ~70 times larger than previous surveys. We compare to literature and to theoretical predictions of DMFs derived from semi-analytic dust evolution models or hydrodynamical cosmological simulations. We also calculate the dust mass function for different morphological types and find scaling relations between our DMFs and their corresponding galaxy stellar mass functions (GSMF) for the same sample.

Consider for a poster?

Yes

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