

How Low Can You Go? Speculation Regarding Lower Limits to Exozodi Dust Density in Planetary Systems

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The zodiacal dust in the Earth's vicinity is produced mostly by asteroid collisions and comet sublimation, although other significant sources are possible. The dust density has presumably declined on average as our solar system has aged, with occasional spikes to higher density following major planetesimal collisions and vaporization of large comets. Data on rate of interplanetary dust particle (IDP) infall to Earth are sparse but indicate the present zodi cloud density may be somewhat lower than normal for the last Gyr. Can useful lower limits to dust densities relevant to TPF/Darwin planning be estimated for mature planetary systems containing terrestrial planets?

