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Observations of Planet Embryos and their Collision Fragments

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Asteroids and comets are remnants of the era of planet formation. The most pristine population, the trans-Neptunian objects (TNOs), resides in the outer parts of the Solar System, whereas near-Earth objects (NEOs), being mainly collision fragments from the main asteroid belt, have experienced considerable physical and dynamical alterations. Some NEOs, however, appear to have a cometary origin. Using space-based observatories, we have obtained thermal infrared observations of NEOs [1] and TNOs [2], and are applying thermal models to estimate their sizes and albedos. We present an assessment of the fraction of the NEO population having a cometary origin [3] and our latest results on the determination of the size distributions of individual TNO subpopulations. Our results apply important constraints on planetesimal formation models.

[1] Trilling, D. E. et al. (2010) AJ 140. [2] Müller, T.G. et al. (2010) A&A 518. [3] Mommert, M. et al. (submitted)

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