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Pallene dust torus observations by the Cosmic Dust Analyzer

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Abstract

The ISS cameras on-board the *Cassini* spacecraft have detected a faint dust torus along the orbit of Pallene [1]. It is believed that the source of the torus is the moon Pallene itself, where dust particles are ejected from its surface by micrometeoroid bombardment.

Here, we present in-situ dust measurements of the Cosmic Dust Analyzer (CDA) on-board of the spacecraft Cassini which confirm the existence of a dust torus of micrometer-sized particles along the orbit of Pallene. The cross-section of the torus has been modeled by a double-Gaussian distribution, resulting in a radial and vertical full width at half maximum of 2300 km and 270 km, respectively, and a maximum particle density of $n = 2.7 \cdot 10^{-3} m^{-3}$.

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References

[1] Hedman, M. M., Murray, C. D., Cooper, N. J., Tiscareno, M. S., Beurle, K., Evans, M. W., Burns, J. A.: Three tenuous rings/arcs for three tiny moons, Icarus, Vol. 199, pp. 378-386, 2009