

Detection of the Earth Resonance Ring Features from Ground Observations

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The recently reduced distribution of the visible zodiacal light(ZL) brightness by Kwon, Hong and Weinberg(1998) has one of the widest sky coverages, the best angular resolution so far, and the lowest level of reduction noises. Taking an advantage of these fine qualities of the data, we carefully filtered out the brightness components of very low and very high spatial frequencies from the *inner* ZL, and detected the dust particles trapped in the first order-resonance with the Earth. Since the discovery of the Earth resonance ring from the IRAS and COBE data, this is the first direct detection of the ring from ground observations. We will discuss origin of the Earth resonance ring by comparing the scattered and thermally re-emitted components of the sun light by the same dust particles. The filtering also revealed, from the *outer* ZL, small amplitude structures of 10 to 20° periodicity. Their relations will be briefly discussed to the IRAS dust bands and possible structures in the scattering phase function of zodiacal dusts.