

**L04a Search for the Near-Sun Objects in the SOHO Coronagraphic Images:
Limiting Detectable Size**

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The near-Sun region interior to 0.2 AU is the last frontier in the solar system exploration. This region may contain small bodies that have long been hypothesized. The small bodies in this region, Near-Sun Objects (NSOs), can be divided into two classes: (1) Primordial Vulcanoids, and (2) End-State Comets/Asteroids.

Both observational and theoretical works have been conducted, but a substantial number of NSOs seems doubtful for existence; previous photographic and infrared searches were unsuccessful for detection of sizeable Vulcanoids (Leake et al. 1987, Campins et al. 1996). Model calculations of NSOs collisional evolution also points to a negative result (Stern & Durda 2000, Evans & Tabachnik 1999). However, whether class (2) NSOs exist or not is still a totally open problem. Therefore, the purpose of this work is to look for objects belonging to the second class of NSOs.

We use for the NSOs survey the SOHO LASCO C3 coronagraph images and examine the region interior to 0.15 AU. The essential factors for NSOs discovery are duration of the observation, and the limiting magnitude that relates to object size. In this report we describe the limiting magnitude statistics for NSOs by analyzing the SOHO images. The attainable limiting magnitude is found to be about 10.5, which corresponds to 4-15 km in diameter at 0.06-0.15 AU. The limiting magnitude was fairly deeper than our initial expectation. We will also present some simulation results of NSOs detection probability.