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TITLE: Physical characteristics of Centaurs and trans-Neptunian objects from combined K2 and Herschel observations

ABSTRACT BODY:

Abstract (2,250 Maximum Characters): Here we present the results of a comprehensive rotational and radiometric analysis of trans-Neptunian objects (TNOs) observed with the Kepler Space Observatory in the K2 mission and earlier with the Herschel Space Observatory at infrared wavelengths. The combined optical light curves and thermal emission data revealed a slow rotation rate of ~ 45 h for the large Kuiper belt object 2007 OR10, and we obtained a diameter of ~ 1535 km that makes 2007 OR10 the third largest TNO after Pluto and Eris. The large size also implies a relatively dark surface, unusual among the dwarf planets in the outer Solar system. We also present rotational curves, physical characteristics and shape models for the Centaur 2002 KY14, for three Classical Kuiper belt objects, 1998 SN165, 2001 QT322 and 2003 QW90, and for two resonant TNOs, 2001 YH140 and 2005 RS43. In the case of 2003 QW90, 2001 YH140 and 2005 RS43 our results are based on so far unpublished thermal emission data from Herschel and Spitzer observations.

CURRENT * CATEGORY: Centaurs and Kuiper Belt Objects

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