

Spectral properties of the extreme solar system objects 2012 DR30 and 2013 AZ60

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Abstract

2012 DR30 and 2013 AZ60 represent two examples of TNOs with very large aphelion distances (2405 and 1951 AU, respectively), thus standing for the currently best candidates of possible scattered-in Oort-cloud objects. Though they possibly shared a similar dynamical scenario, the two bodies exhibit surprisingly diverging prediction for orbital evolution and also quite different surface properties (Kiss et al. 2013, Kiss et al. 2014).

Here we compare these optical and infrared photometry and spectra of the two bodies. Both show a generally flat spectrum, but with significantly differing slope. We find clear signs of water ice on 2013 DR30 particularly, which is an exciting diagnostic of a possible water reservoir at very large perihelion distances, and on the other hand, suggests a close link between the giant cometary nuclei of the Oort Cloud (for that Hale-Bopp is the only known example in our Solar System) and these exotic TNOs.

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