

## **The interacting satellites of 2003 EL61**

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The Kuiper belt object (KBO) 2003 EL61 and its two satellites are unique in many ways. Brown et al. 2007 [Nature, 446, 294] have recently suggested that EL61 is the largest member of a collisional family, the first discovered in the Kuiper belt. Further studies substantiate this claim and imply that the family is ancient and probably primordial (Ragozzine & Brown 2007, submitted). Presumably, the two moons also formed in this impact event, making it the only well-known case where a family-forming impact also created satellites.

EL61 is also the only minor planet known to have two strongly interacting moons. Previous attempts to fit a Keplerian orbit for the inner satellite have yielded unreasonable results. Perturbations on the known orbit of the outer satellite are smaller but appear to be present. Accounting for these three-body effects, we present the results of new observations of the moons of 2003 EL61. We discuss the implications of the results on the formation of this system in the family-forming collision. We also consider the concurrent tidal evolution of the orbits of the moons of this interesting object.