Physical properties of asteroid families

J. Masiero[1], F. DeMeo[2], T. Kasuga[3], and A. Parker[4]

[1]NASA Jet Propulsion Laboratory
[2]Harvard-Smithsonian Center for Astrophysics
[3]National Astronomical Observatory of Japan
[4]UC Berkeley

Asteroid families are created when a parent body undergoes a cratering or collisional disruption event, forming a population of smaller asteroids that initially have orbital elements similar to the parent. Members of asteroid families should also show a compositional similarity indicative of their lineage. This can be observed by comparing colors, spectra, and albedos of family members to each other and to the background population, and can be used to improve family associations by rejecting background objects and extending the search space. In this talk, we review the new data that has become available over the last decade from large-scale surveys of asteroid physical properties, recent work using these datasets to investigate family properties, and how this wealth of information has expanded our understanding of the formation and evolution of asteroid families. This work will be detailed in an upcoming chapter of the "Asteroids IV" book in 2015.