

## ASTEROID FAMILIES

**Alberto Cellino and Aldo Dell’Oro**

*Osservatorio Astronomico di Torino. INAF. Italy*

Since they are the products of energetic collisional events, asteroid families provide a fundamental body of evidence to test the predictions of theoretical and numerical models of catastrophic disruption phenomena. The main difficulty to be faced is that of being able to retrieve from current physical and dynamical data the information directly related to the original events that produced families, and to separate and quantitatively assess the importance of evolutionary phenomena that have progressively changed the properties of families, as a consequence of physical processes that are not related to the original disruption events. Starting since the early 90s, there has been a significant evolution in our interpretation of family properties, as a consequence of the progressive development of new theoretical ideas, the development of numerical models, and the recognition and quantitative assessment of the influence of dynamical processes that had not been taken into account in preliminary studies, including primarily the Yarkovsky and YORP effects. A brief review of the current state of the art in our understanding of asteroid families is presented, and a few likely directions for future developments are sketched.