

BAPTISTINA: A STRANGE FAMILY IN THE INNER BELT. D. Lazzaro¹, J.M. Carvano¹, T. Michtchenko², V. Carruba³, P.H. Hasselman^{1,4}, T. Mothé-Diniz¹, ¹Observatório Nacional, Rio de Janeiro, Brazil, lazzaro@on.br, ²IAG, Universidade de São Paulo, São Paulo, Brazil, ³IPD-UNIVAP, São José dos Campos, Brazil, ⁴OV, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil

Introduction: A cluster in proper elements space is defined as a dynamical family, but only the knowledge of the surface composition of a significant number of its members can give information on the parent body and the type of fragmentation which gave rise to the family. A certain degree of homogeneity is expected, or either, that the associated mineralogy be consistent with the breakup of an unique body. Recently [1] have identified some families with a mixture of taxonomic types, in particular the one associated to asteroid 298 Baptistina. Although only 9, over more than 250 numbered members, do have a taxonomic classification, their distribution is exactly that expect from de disruption of a differentiated asteroid (V-, A-, S- and X-type). On the other hand, a more recent study claims that the Baptistina family is of C-type and its formation much probably associated to the impact which gave rise to the K/T boundary [2]. In order to have a better insight on this very interesting family we decided to perform a more detailed observational and dynamical study of it.

Observational Data: In order to test the hypothesis of the breakup of a differentiated body we started, in 2006, an observational campaign. The aim was to increase the number of family members with a taxonomic classification. Spectroscopic data on 6 asteroids was obtained using the Telescopio Nazionale Galileo (Spain) and the IRTF (Hawaii). Photometric BVRI colors of other 12 family members were acquired at ESO (Chile). The dataset was then increased, in particular the small-sized asteroids, using colors available in the SLOAN Moving Object Catalog.

Dynamical Analysis: We also performed a detailed dynamical analysis of the region in order to have a precise determination of the Baptistina family. The analysis confirmed a previous study of the region [3] showing that is crossed by a very complicated net of mean motion and secular resonances. These resonances make the identification of the family very difficult.

Discussion: The obtained taxonomic distribution of the Baptistina family will be discussed focusing on the probable composition of the parent body. Regarding 289 Baptistina itself, which was taxonomically classified by [4] as X-type, but considered as C-type and related to CM2 meteorites by [3], we expect to be able to present the albedo determination obtained from

thermal observations with Gemini (just acquired at the moment of the submission of this abstract).

References: [1] Mothé-Diniz T. et al. (2005) *Icarus*, 174, 54. [2] Bottke W. et al. (2007) *Nature*, 449, 48. [3] Alvarez-Candal et al. (2006) *Astron.&Astrophys.*, 459, 967.

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