The compositional distribution of asteroids

F. DeMeo[1,2], B. Carry[3,4], C. Alexander[5], K. Walsh[6], and C. Chapman[6]

[1]Harvard-Smithsonian Center for Astrophysics
[2]Massachusetts Institute of Technology
[3]Institut de Mecanique Celeste et de Calcul des Ephemerides
[4]Observatoire de Paris
[5]Department of Terrestrial Magnetism, Carnegie Institution of Washington
[6]Southwest Research Institute

Each compositional class of asteroid is a relic of the temperature and composition conditions in which it formed. The current distribution reveals the history of the Solar System, and each body acts as a marker of any mixing that occurred since formation. The remnant of a primordial temperature gradient, seen as transition from the S class to C class dominating in different regions of the asteroid belt has been a paradigm for three decades [1-4]. Today, we are armed with major advancements from the past decade that have revolutionized the field of asteroids in areas such as discovery, physical characterization, and dynamical models. A new and more detailed compositional map [5,6] created with data from the Sloan Digital Sky Survey [7] allows us to re-examine compositional trends in the main asteroid belt and what the physical and dynamical implications might be. This talk is related to recent work from DeMeo & Carry 2013, 2014 [5,6] and an upcoming chapter of the "Asteroids IV" book in 2015.

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