

ON A TIME SPAN OF ASTEROID – RUBBLE PILE (ARP) CONSOLIDATION AND A REASON OF LOW DENSITY OF SUCH ASTEROIDS. G. A. Leikin and A.N. Sanovich. Sternberg State Astronomical Institute, Moscow, State University, 119992, Moscow, Universitetskij prosp. 13, Russia, E-mail: san@sai.msu.ru

Earlier [1, 2] we have shown, that ARP must lost the fragments having velocities exceeding ~ 10 m/s in 10^7 - 10^8 s. Here we investigate with a simple model the time span of consolidation of asteroid fragments produced by dissipation of kinetic energy of fragments in collision. We estimate frequency of collision by the method of free path. The estimate is based on very simple assumptions about form and velocity of asteroid fragments. The dissipation of kinetic energy in double collisions is estimated in simplest dynamic assumption. The evolution of the fragments' separation is followed, and the time span of ARP transformation to low density object, which seems to observer as consolidated one, is estimated.

References: [1] Leikin G. A. and Sanovich A. N. (2002) ACM, 741-742. [2] Leikin G. A. and Sanovich A. N. (2003) Abstr. pap. of Vernadsky – Brown 38 , MS059.