STABILITY OF THE PERSEIDS FILAMENTS. Z. Kaňuchová[1], J. Svoreň[2] and M. Jakubík[3], [1]Astronomical Institute of Slovak Academy of Sciences, SK-059 60 Tatranská Lomnica, Slovakia. [2]Skalnaté Pleso Observatory, SK-059 60 Tatranská Lomnica, Slovakia. astrsven@ta3.sk, [3]Astronomical Institute of Slovak Academy of Sciences, SK-059 60 Tatranská Lomnica, Slovakia. mjakubik@ta3.sk.

Introduction: 17 filaments (designated A—R) were found inside the Perseid meteoroid stream in the range of photographic magnitudes [1] by the method of indices [2] (see Fig. 1). Their positions in close proximity of strong mean-motion resonances with Jupiter and Saturn were confirmed by the numerical integrations of the motion of particles in the Perseid stream. In the work we extend the previous integration [3] to the multiple simulation of clusters of meteoroids.

References:
[1] Lindblad B. et al. (2003) *Earth Moon Planets, 93,* 249-260. [2] Kaňuchová Z. et al. (2005) *Contrib. Astron. Obs. Skalnaté Pleso, 35,* 135-162. [3] Svoreň J. et al. (2006) *Icarus, 183,* 115–121. [4] Wisdom J. and Holman D. (1991) *Astron. J., 102,* 1528-1538. [5] Levison H. F. and Duncan M. J. (1994) *Icarus, 108,* 18-36.
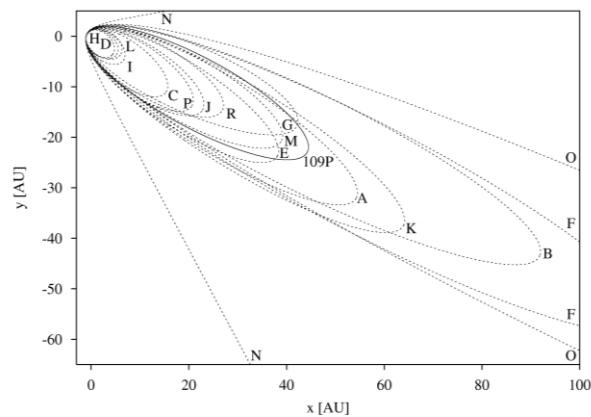
Figure 1: A projection of the mean orbits of 17 filaments into the plane of the mean orbit of Perseids selected. The orbit of comet 109P/Swift-Tuttle in 1992 is marked.

Method: A numerical integration of more than 3.6 million test particles over the time interval equal to 15 revolutions of the mother comet was done. The software package SWIFT [4], [5] was used. The clusters of test particles emitted during the each perihelion passage were selected - each cluster spread in space around the pertinent orbit of the parent comet to the limits comparable to the proportions of the observed Perseid stream. The evolution of test particles is studied and the distributions of their orbital elements are compared with the distributions of the elements of the real meteoroids in the densest part of the stream.