Optimal Maneuver Schedule for Constellation Keeping and Formation

Andrei Baranov[1], **Alexei Golikov**[2]

[1]*Keldysh Institute of Applied Mathematics,*
119270, 3 Frunzenskaya ul., d.7, kv.120, Moscow, Russia. E-mail: baranov@kiam1.rssi.ru
[2]*Keldysh Institute of Applied Mathematics,*
125212, Leningradskoe shosse, d.46, kv.72, Moscow, Russia. E-mail: golikov@kiam1.rssi.ru

Problem of satellite configuration keeping and formation is considered. Proposed method of problem solution provides to maintain the motion of satellite system during long time interval: from some days to 1 year.

Needed accuracy is supported by using an iteration procedure. The base of this procedure is analytical determination of impulses parameters and high efficient THEONA software based on the Numeric-Analytical satellite theory. Computing time of maneuvers parameters calculation have near linear dependance from number of satellites.

We consider also the problems of satellite constellation formation and of spacecraft transfer from one working point of constellation to other.

An optimisation of the motion of satellite system is provided in this case also.