

SYSTEM OF ARTIFICIAL INTELLECT SUPPORT OF LOW-THRUST SPACECRAFT INTERPLANETARY MISSION OPTIMIZATION

© 2008 O. L. Starinova

Samara State Aerospace University

The paper deals with an information computational system of artificial intellect support of low-thrust interplanetary mission optimization. By mission optimization is meant joint optimization of laws of control as well as spacecraft motion trajectories and design parameters which correspond to them. The system is based on the use of up-to-date dynamic data processing methods obtained on the sequence of refined mission models.

Space craft, low thrust, optimal control, mathematical models of motion.

References

1. S. A. Ishkov, O. L. Milokumova, V. V. Salmin. Optimization of closed-loop low-thrust interplanetary flights Earth-Mars-Earth. // *Kosmicheskiye Issledovaniya (Space Investigations.)* – 1995. – Vol. 33, issue 2. – pp. 210-219.
2. V. V. Salmin, S. A. Ishkov, O. L. Starinova. Methods of solving variational tasks of low-thrust space flight mechanics. – Samara: Publishing House of Samara Scientific Centre of Russian Academy of Science, 2006.
3. O. L. Starinova. Iteration optimization of low-thrust engine spacecraft heliocentric motion // Transactions of the 13th All-Russian seminar on aircraft motion control and navigation. - Samara: SSAU Publishing House, 2007. – pp. 201-212.
4. O. L. Starinova. Optimization of low-thrust engine spacecraft motion in the Earth-Moon System. // *Izvestiya (News) of Samara Scientific Centre of Russian Academy of Science*, Vol. 8 No. 3(17). – Samara, 2006. pp. 824-833.
5. D. Grop. Methods of System identification. – Moscow: Mir, 1979.

Starinova, Olga Leonardovna, Associate Professor of Aircraft Construction Department, SSAU, Candidate of Technical Science. Area of research: dynamics, ballistics and control of low-thrust spacecraft motion, theory of optimal control.