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To a problem of perturbed motion of comets

A. S. Solov'ev

Vologda Pedagogical University, Vologda, Russia

In the modern literature there are frequent judgements that the origin of comets is related to objects of the Kuiper belt. In considering an object of the Kuiper belt as an ancestor of a cometary skew field, it is of interest to study the evolution of orbit of a typical skew field referred to the Kuiper belt. Similar researches have been performed earlier, but particular attention is mainly focused therewith on dynamical aspects of the given problem. It has allowed to receive outcomes of evolution of the data of skew fields (Ipatov, 2000). However, it seems to us that in addition to dynamical aspects of this problem, the study of statistical properties of a field of force influencing the evolution of orbit of object of the Kuiper belt is of interest as well. It is known that the physical reason of the change of orbit is due to the influence of planets and other objects surrounding the given one. In the present paper the research of statistical properties of forces affecting an object of the Kuiper belt is performed. The intensity of gravitational perturbations is evaluated. The analysis of evolution of orbit of a skew field under these perturbations is given. The possibilities of the formation of a comet from such object are discussed.

References

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