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STELLAR DYNAMICS: FROM CLASSIC TO MODERN

International Conference to be held
in Saint Petersburg, August 21–27, 2000

Abstracts
Participants

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Edited by L. P. Ossipkov, I. I. Nikiforov

The issue contains the abstracts and list of participants of the International Conference "Stellar Dynamics: from Classic to Modern" to be held in Saint Petersburg, August 21–27, 2000 in honour of the 100th birthday of Professor Kyrill Fedorovich Ogorodnikov (1900–1985). The work of editors was mainly technical. Only the authors of abstracts are responsible for scientific contents of their texts.

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this photometric plane. The existence of the plane has interesting implications for bulge formation models.

The Multiplication of Random Matricies for Mixing Simulation in Non-Stationary Stellar Systems

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In the non-stationary stellar systems the mixing can be modeled by the multiplication of random $2n$-dimensional matricies. The statistically averaged behaviour of a small phase drop that is deformed and stretched in the result of non-stationarity of stellar system is studied. At any moment of time such deformation and stretching are described by the matrix of deformation or turn. The degree of non-stationarity of a stellar system can be taken into account by varying the values of deformation and turn parameters and the probability of their appearence.

The suitable simplex matricies and values of these parameters were selected. In a case of very strong deformation the resulting matrix quickly degenerates.

The numerical experiments show that the Central Limit Theorem of the Probability Theory can be applied to multiplication of random matricies as for to multiplication of random values. According to that theorem the characteristic mixing time can determined by the time of reaching the asymptotic value of the stretching speed dispersion or by time of reaching the "plato" of a value σ^2/m. If probabilities of appearence of deformation or turn are almost equal then in 2D case the asymptotic limit is reached for $m = 20 \div 30$, in 4D case — for $m = 40 \div 50$. Under the transition from 2D models to 4D ones the characteristic time increases in $1.5 \div 2$ times.

Theory of Equilibrium Figures and Dynamics of Galaxies

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The theory of equilibrium figures is a charming field of knowledge. But whether is this theory useful? Correctly to answer this question, it is necessary well to know well methods and opportunities of the theory of equilibrium figures.

1. Classical "line": homogeneous fluid mass:
   - 1a) The figures of relative equilibrium;
   - 1b) The Dirichlet's problem: a motion of a fluid ellipsoid with the linear velocity field;
   - 1c) The equilibrium figures with the nonlinear velocity field.
2. The theory of equilibrium figures of a heterogeneous fluid mass:
   - 2a) The Emden's and Plummer's spheres (can rotate);
   - 2b) From the Clairaut's and Liapounov's problems to Chandrasekhar.
3. The system of several isolated liquid masses:
   - 3a) The Roche's and Darwin's ellipsoids;
   - 3b) The figures with internal currents;
   - 3c) Binary galaxies.
4. Dynamics of elliptic galaxies:
   - 4a) Two types of E-galaxies;
   - 4b) The stellar-hydrodynamic models;
   - 4c) The collisionless phase-space models.

Some Principal Questions of the Theory of Equilibrium Figures

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The goal of this paper is to describe several problems unifying objective of which is to obtain an improved understanding of the theory of equilibrium figures. We will consider three basic questions.