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Abstracts of Short Communications and Posters

Section:

9. Ordinary Differential Equations and Dynamical Systems

1991 MS Classification:
Popescu, Mihai. E., Romanian Academy of Science, Bucharest, Romania
Existence and Oribital Stability of Periodic Solutions for Small-Parameter Non-Linear Differential Systems
We consider a class of non-linear differential systems and discuss the existence of periodic solutions as well as the stability of these solutions in the case when the linear part admits periodic solutions. This requires to determine a fundamental system of periodic solutions for the adjunct system corresponding to the variations system and to check upon the orthogonality of this solution with the non-linear term calculated for the solutions of the adjunct system. We also establish the orbital stability of the solutions to the non-linear system analysed. Non-linear differential equation system containing a small parameter provide the mathematical model for a wide class of dynamical phenomena whose solutions are periodic.