

CoPO, the Corrector of Periodic Orbits algorithm with high precision.

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SUMMARY

In this talk the CoPO (cf. [1]) algorithm is presented. This corrector algorithm computes up to any arbitrary precision periodic orbits of dynamical systems. It is based on an optimized shooting method combined with a numerical ODE solver, TIDES (cf. [2]), that uses a Taylor series method. This methodology is nowadays the only one capable to reach precisions up to 1000 digits or more. Moreover, some numerical tests for the Henon-Heiles' Hamiltonian and the Lorenz's model which show the good behavior of the proposed method are presented. Finally, a data base (cf. [3]) of rigorous and high precision periodic orbits of the Lorenz model is exposed.

Keywords: Periodic Orbits, shooting method, Taylor series method, Lorenz model.

AMS Classification: 37M20, 65P20

References

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