SCIENTIFIC REPORT
on the project “Global Bifurcation Analysis of Biomedical and Ecological Rational Dynamical Systems” supported by the IMU-Simons Foundation

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• Research in progress:

1. Developing our bifurcational geometric approach, we solve the limit cycle problem for the general Liénard polynomial system.

2. Using a similar approach and some numerical results, we present a new scenario of chaos transition for the classical Lorenz system.

3. We complete the global qualitative analysis of a quartic family of planar vector fields corresponding to a rational Holling-type dynamical system which models the dynamics of the populations of predators and their prey in a given ecological or biomedical system.

• Papers published or in preprint form:


• PhD students advised: Sabrina Streipert, Nasrin Sultana, Tom Cuchta, Gülşah Yeni, Ismail Tiryaki.

• Dates spent at the university: 02.03.2015–29.04.2015.

26.05.2015

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