



Prirodno-matematički fakultet - Niš Odsek za fiziku, Katedra za teorijsku fiziku



Predavanje:

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TIME-DELAY FEEDBACK CONTROL OF NONLINEAR OSCILLATORS

ABSTRACT:

In the introductory part several examples of nonlinear oscillators will be provided, such as van der Pol, Lorenz and Rössler models, commonly present in the current literature related to studies of simple dynamic systems with complex behavior. Another well known system of phase oscillators analytically solved by Kuramoto undergoes phase transition into synchronized state when the strength of coupling between oscillators exceeds some critical value.

The main part of the lecture will provide information on recently published results on stabilization of unstable fixed points of nonlinear oscillators. The stabilization is successful in wider domain and becomes more robust when the feedback term of Pyragas type contains varying delay. The method is first applied to individual oscillators defined by systems of ordinary differential equations and systems described by time-delay equations, e.g. the equation of Mackey-Glass, and then to systems of coupled nonlinear oscillators introduced to model the behavior of neurons.

MESTO: SVEČANA SALA PMF-A (I SPRAT), VIŠEGRADSKA 33

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