



Universidade Federal da Paraíba
Centro de Ciências Exatas e da Natureza
Programa de Pós-Graduação *Stricto Sensu* em Física

Colóquio

“Globally coupled stochastic two-state oscillators: synchronization of infinite and finite arrays”

RESUMO: We consider arrays of the simplest two-state (on–off) stochastic units. The units are Markovian, that is, the transitions between the two states occur at a given rate. We construct arrays of N globally coupled binary units, and observe a remarkable richness of behavior as the control parameter that measures the coupling strength is increased. In the mean field limit we consider the four simplest polynomial forms of coupling that lead to bifurcations, and characterize the associated phase transitions of the arrays. When N is finite there are fluctuations about the well-defined steady states of the infinite arrays. We study the nature of these fluctuations and their effects on the bifurcations.

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| Prof. Dr. Alexandre Rosas UFPB |
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