TIFR Centre for Interdisciplinary Sciences
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Seminar

Synchronizing by uncoupling

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I shall present a scheme for synchronizing chaotic dynamical systems by transiently uncoupling them. Specifically, systems coupled only in a fraction of their state spaces may synchronize even if fully coupled they do not. For many standard systems coupling strengths need to be bounded to effect synchrony. Transient uncoupling removes this bound and enables synchronization in an infinite range of effective coupling strengths. Additionally, the transient coupling scheme opens up the possibility to induce synchrony in (biological or technical) systems whose parameters are fixed and cannot be modified continuously. One can also extend the scheme to induce generalized synchronization in both unidirectionally and bidirectionally coupled populations of chaotic systems. Further, we demonstrate that transient uncoupling scheme is capable of counteracting the disruptive effect of noise on synchronization.

Tuesday, Feb 16th 2016

4:00 PM (Tea/Coffee at 3:45 PM)

Seminar Hall, TCIS