DEPARTMENT OF APPLIED MATHEMATICS
應 用 數 學 系

The Hong Kong Polytechnic University
Department of Applied Mathematics

Colloquium

Adaptive elimination of synchronization in coupled oscillators

by

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Abstract

In this work, we articulate an adaptive control scheme with a feedback delay to achieve synchronization elimination in a large population of coupled and synchronized oscillators. We validate the feasibility of this scheme not only in the coupled Kuramoto's oscillators with a unimodal or bimodal distribution of natural frequency, but also in two representative analog models of neuronal networks, viz., the FitzHugh-Nagumo spiking oscillators and the Hindmarsh-Rose bursting oscillators. More significantly, we analytically illustrate the feasibility of the articulated scheme with a feedback delay and further discover how the exact topological form of the bimodal natural frequency distribution influences the scheme performance.

Date : 22 February, 2017 (Wednesday)
Time : 4:00p.m. – 5:00p.m.
Venue : TU801, The Hong Kong Polytechnic University

*** * * ALL ARE WELCOME * * ***