APPC 10 : The 10th Asia Pacific Physics Conference

The 10th Asia Pacific Physics Conference (APPC10)

Dates: August 21-24, 2007
Location: POSCO International Center, POSTECH, Pohang, Korea

The 10th Asia Pacific Physics Conference (APPC10) is to be held during August 21-24, 2007 in Pohang, Korea. This triennial meeting is organized under the auspices of the Association of Asia Pacific Physical Societies (AAPPS) and the Korean Physical Society (KPS). These are dedicated to the presentation and discussion of the latest developments and ideas in physics and related science in the Asia-Pacific physics communities. It is our great pleasure to invite you to attend APPC10 to be held in Pohang area in Korea.

Notice:
"The submission period for the Proceedings of APPC10 has expired. Thank you for your participation."

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Coupling Effect on Stochastic Spiking Coherence in Globally Coupled Neurons

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We consider a large ensemble of globally coupled subthreshold Morris-Lecar neurons. The coupling effect on stochastic spiking coherence (i.e., noise-induced coherence between neural spikings) is numerically investigated by varying the coupling strength J. As J passes a threshold, a transition to stochastic spiking coherence, which is described in terms of the order parameter, occurs because the coupling stimulates collective coherence between noise-induced spikings. We also characterize the degree of stochastic spiking coherence by using a coherence measure M. As J is increased, M increases, it becomes maximal at an optimal coupling strength, and then it decreases abruptly because the coupling induces the oscillator death (i.e., quenching of noise-induced spikings) for large J. Consequently, stochastic spiking coherence occurs in a large range of intermediate coupling strength.

Keywords : Globally Coupled Neurons; Spiking Coherence; Coupling Effect