

# Synchronization and mixed mode oscillations in a network of coupled light emitting diodes

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We present results on the synchronization in a network of coupled light emitting diodes (LED) in the presence of AC-filtered nonlinear opto-electronic feedback. Each LED can undergo a variety of dynamical behaviours like chaotic and periodic mixed mode oscillations. These scenarios are found in a simplified physical model of the experimental system. The aim of the research is to create a miniaturized LED network containing many nodes imitating a neural network. Here we present experimental and numerical results for the transition to synchronization of  $N \leq 6$  nodes coupled in the global configuration.