1060-37-177 **Georgi S. Medvedev*** (medvedev@drexel.edu), 3141 Chestnut Street Philadelphia, Philadelphia, PA 10104. *Synchronization of coupled limit cycles.*

We consider coupled nonlinear dynamical systems with exponentially stable limit cycles. Under general assumptions on the local oscillatory dynamics, we prove exponential stability of the limit cycle of the coupled system provided that the linear coupling is dissipative and sufficiently strong. We also study robustness of synchrony to noise. To this end, we analytically estimate the degree of coherence of the network oscillations in the presence of noise. The analytical results are illustrated by several applications in computational neuroscience. (Received March 29, 2010)