Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Weak Dynamic Links for Synchronizing Oscillator Arrays.[1] DENIS TSYGANKOV, University of Maryland, IPST, KURT WIESENFELD, Georgia Institute of Technology, CNS — A novel synchronization mechanism observed in a model of coupled fiber laser arrays is explained [1]. The arrays can operate in a highly coherent way if some elements are driven more strongly than others. The synchronized state of such an inhomogeneous array, although sub-optimal relative to a uniformly pumped array, is far more robust with respect to parameter mismatch among the individual elements. Similar dynamical behavior might be useful for synchronizing more general coupled oscillator systems when amplitude dynamics is crucial.

[1]1. D. Tsygankov and K. Wiesenfeld, Weak Link Synchronization, submitted.

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Date submitted: 29 Nov 2005 Electronic form version 1.4