1023-92-1738 **Menaka Bandara Navaratna*** (menaka.navaratna@gmail.com), Dept of Physical Sciences and Mathematics, Florida Gulf Coast University, 10501 FGCU Boulevard South, Fort Myers, FL 33965. *Control of synchronization in coupled oscillatory networks.*

Networks of coupled oscillators have been studied in various contexts in biology for a number of years. It is typical to assume networks only have nearest neighbor interactions. It has been recognized recently that this type of coupling, while appealing from a very intuitive viewpoint, has the drawback that transients may take far too long to die out, requiring that phase shifts require weeks to be completed. Indeed it has been suggested by Strogatz and others that a few long distance interconnections may have a dramatic effect in accelerating the transient response. Typically these interconnections are thought to occur in a rather random manner. Here we observe that the transient response can be related to a dominant eigenvalue of a linear system, and hence it is important to understand the probabilistic relationship between the long distance connections and the real part of the dominant eigenvalue. It is pointed out that the choice of the probability distribution, that determines the choice of long distance connections, plays an important role in determining the transient response, and in some cases the improvement of the transient response time may be captured using the theory of generalized extreme value distributions (Received September 26, 2006)