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**Menaka B Navaratna\*** (mnavarat@fgcu.edu), 10501 FGCU Blvd, S., Fort Myers, FL 33965,  
and **Channa N Navaratna**. *Mathematical analysis of synchronization of pacemaker cells in mammals.*

In mammals the main pacemaker cells are located in suprachiasmatic nucleus (SCN). Study focuses on the possible connection topologies of neurons and their effect on synchronization. We employ Achermann and Kunz (1999) model to study the problem of interpreting synchronization in the SCN network from a dynamical systems viewpoint. The proportion of local or nearest neighbor neuronal connections and global or long distance connections are varied in the SCN, and compared time elapsed before synchronization is established. In conjunction with our previous finding that completely interconnected global networks resynchronize, these results suggest the possibility that the SCN topology is a "small world" network. (Received September 21, 2009)