1086-92-1514   **Justin R. Dunmyre***, dunmyre@umich.edu, and **Victoria Booth**. *Coupled Flip-flops: Noise and Analysis for a Sleep-wake Cycle Model.*

Transitions between the wake state and REM and non-REM sleep states may be governed by a regulatory network composed of coupled flip-flops. One flip-flop network controls sleep-wake transitions while the REM-nonREM cycle is controlled by a separate flip-flop. We analyze the effects of different sources of noise on a single flip-flop network focusing on changes in state durations. This analysis provides insights regarding the interaction dynamics of coupled flip-flops subject to physiological variability. (Received September 23, 2012)