1116-Z1-1151 **Shelby N Wilson*** (shelby.wilson@morehouse.edu), **Selenne Banuelos**, **Janet Best**, **Gemma Huguet**, **Alicia Prieto-Langarica** and **Pamela Pyzza**. *Temperature Effects on REM/non-REM Sleep Dynamics.*

Sleep is a behavioral state in which we spend nearly one third of our lives. While much effort has been put forth in understanding the nature of sleep, many aspects of this phenomenon are still not well understood. Several studies have been done on human patients that suggest that changes in ambient temperature may have important effects on sleep patterns. We present a mathematical model consisting of a system of non-linear ordinary differential equations that describes numerous features of the human sleep/wake cycle and aspects of REM/non-REM dynamics. The model simulates temperature changes detected by neurons in the POAH that, in turn, affect the REM/non-REM cycles during sleep through a state-dependent homeostatic process. This model enables us to better understand temperature and sleep relationships and support experimental findings. (Received September 17, 2015)