1046-60-1835   **Badal Joshi*** (`badal@math.ohio-state.edu`), 231 W 18th Avenue, Columbus, OH 43210, and **Janet Best**. *A Markov state model for wake-sleep transitions.*

We have shown that a Generalized Pareto distribution provides a good fit to the wake bout times in rat infants of several different ages. This allows us to make predictions about the bout distribution at ages for which experimental data is not available. In order to identify the neuronal mechanisms that generate the wake bout distribution, we construct a Markov state model. The sub-states may represent the activity of different wake-active neuronal populations, and the transition rates provide clues to their interactions. We derive and state constraints on the architecture and the transition rates in the Markov model in order to obtain a Generalized Pareto distribution. (Received September 17, 2008)