

1096-VG-2537 **Laura R. Gonzalez-Ramirez*** (rgonz@bu.edu), 111 Cummington Mall, Boston, MA 02215, and
Omar Ahmed, Sydney S. Cash, C. Eugene Wayne and Mark A. Kramer. *Descriptive
analysis and modeling of wave propagation during epileptic seizures.*

Epilepsy – the condition of recurrent, unprovoked seizures – manifests in brain voltage activity with characteristic spatio-temporal patterns. One type of pattern observed during a seizure is a traveling wave. To characterize these waves, we consider high-density local field potential data recorded *in vivo* from human cortex during a seizure. Using a mean-field approach we develop a mathematical model consistent with the observed neuronal population activity and determine analytically the parameter configurations that support traveling wave solutions. We then employ the clinically observed voltage activity to constrain the model parameters, and propose latent biophysical mechanisms that contribute to the observed traveling waves. We describe the biological implications of such regime. (Received September 17, 2013)