

1135-I1-316

**Paul E. Fishback\*** (fishbacp@mail.gvsu.edu), Dept. of Mathematics, Grand Valley State University, 1 Campus Drive, Allendale, MI 49401. *A Mathematician, Engineer, and Brain Surgeon Walk into a Bar: Collaborating with Biomedical Engineers and Neuroscientists in the Study of Epilepsy*. Preliminary report.

Evaluation of an epilepsy patient's candidacy for surgical intervention requires determining the portion of cerebral tissue that constitutes the seizure onset zone (SOZ). Recent research indicates that biomarkers of the SOZ include sources of high frequency oscillations and the presence of network community structures, all of which can be obtained from analyzing long-term electroencephalography (EEG) records. Mathematical tools used in identifying these biomarkers include wavelets and other integral transforms, time-frequency analysis, machine learning, and network science measures. This talk will provide a brief overview of how some of these tools are used as well as a reflection by the speaker on his experiences collaborating with individuals from the biomedical engineering and neurology disciplines. (Received August 23, 2017)