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Jianzhong Su* (su@uta.edu), Department of Mathematics, University of Texas at Arlington, Arlington, TX 76019, and **Honghui Zhang** and **Ariel Bowman**. *EEG Source Localization and Reconstruction: Methods and Applications*. Preliminary report.

EEG Source Reconstruction is an imaging modality based on multi-channel Electroencephalography (EEG) signals. It measures the brain field potential fluctuations on the skull and mathematically calculate the electric current density inside the brain by solving an inverse problem. In this talk, we introduce mathematical methods for the EEG source reconstruction problems and discuss some of the applications. One is in finding abnormality in brain activities during seizures of an infant patient with Glucose Transporter Deficiency Syndrome, particularly to identify the brain areas that lead other areas of brain activities during peak seizure periods. Another example of EEG imaging is to find the neuronal signatures of seizure by finding its underlying network and its oscillatory dynamics that resembles seizure EEG signals. (Received July 18, 2017)