**Colleague** [**Travis**](https://ashford.instructure.com/courses/72891/users/26294) **M response to class 6 week 2 discussion 1**

As I read more about various technique, my interest in MEG has grown. This growing is due to its uses, and advantages that it holds. For example, while, it provides temporal characteristics regarding brain activation with sub-millisecond precision, has good spatial resolution, MEG can be used for pre-operative brain mapping, epilepsy surgery, and so on.

     For a clearer understanding of MEG, Ahlfors&Mody (2019) has described basic concepts of MEG (such as data acquisition, analysis, and interpretation). Also, this study has illustrated MEG’s use in cognitive neuroscience research by way of studies regarding reading disabilities, and language processing. Results of these studies were favorable (and has shown MEG in a positive light). In my research on these techniques, I have come to the conclusion that these technologies (i.e. functional MRI (fMRI), electroencephalograms (EEGs), and MEGs) complement each other. Where one technique may lack, or is not time sensitive to a given task, the other may prove strong in that area (and vice versa). For example, while MEG provides temporal characteristics about brain activation in sub-millisecond precision, fMRI measurement produces poor temporal information. That said, according to Ahlfors&Mody (2019), “MEG is poised to make a rich contribution to the extraction of neural signatures of complex human behaviors in health and disease”. In fact, in my brief research of MEG, I can understand its benefits, and why it is a technique used in mental health.

     As I reach the chosen article for this discussion, I will explain why this topic is important to me. Years ago, I had a stroke, and was diagnosed with toxoplasmosis. I experance constant tremors and uncontrollable movement on the right side of my body. I was scheduled to undergo Deep Brain Stimulation on two occasions. Both times, however, I failed to complete the procedure (a day prior). I was extremely afraid!

     I came across an article by Connolly, Bajwa& Johnson (2012) that speaks about Deep Brain Stimulation (DBS). In their study, MEG was performed on a patient with essential tremor (ET) and parkinson’s disease (PD), and subthalamic nucleus (STN)-DBS implants. With the use of both electromyography (EMG) and MEG, these recordings investigated oscillatory operations related to postural tremor at incompatible levels of stimulation parameters, and tremor severity. Additionally, “results demonstrate the capabilities of MEG to record cortical dynamics of tremor during deep brain stimulation and suggest that MEG could be used to examine DBS in the context of motor symptoms of PD and of ET” (Connolly, Bajwa& Johnson, 2012). From this research, I can notice that MEG is a powerful device alone, but can be even more productive when its recordings are combined with results of other techniques.

Ahlfors, S. P., &Mody, M. (2019). Overview of MEG. Organizational research methods, 22(1), 95–115. https://doi.org/10.1177/1094428116676344

Carlson, N. R., & Birkett, M. A. (2017). [Physiology of behavior](https://ashford.instructure.com/courses/72891/external_tools/retrieve?display=borderless&url=https%3A%2F%2Fcontent.ashford.edu%2Flti%3Fbookcode%3DCarlson.0505.17.1) (12th ed.) [Custom edition]. Retrieved from [https://content.ashford.edu (Links to an external site.)](https://content.ashford.edu/)

Connolly, A. T., Bajwa, J. A., & Johnson, M. D. (2012). Cortical magnetoencephalography of deep brain stimulation for the treatment of postural tremor. Brain stimulation, 5(4), 616–624. https://doi.org/10.1016/j.brs.2011.11.006