Effects of downsampling (512 Hz → 500 Hz)

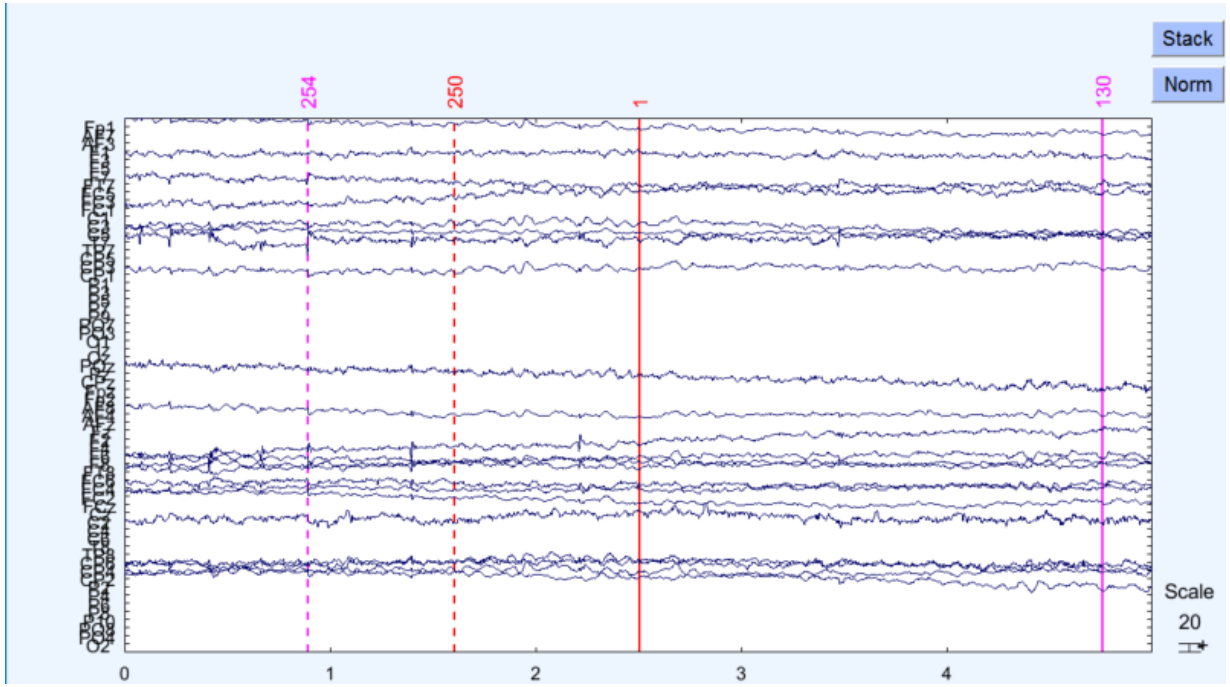
Does it interact with the participant‘s alpha???

→ Power spectrum peaks for frequency harmonics

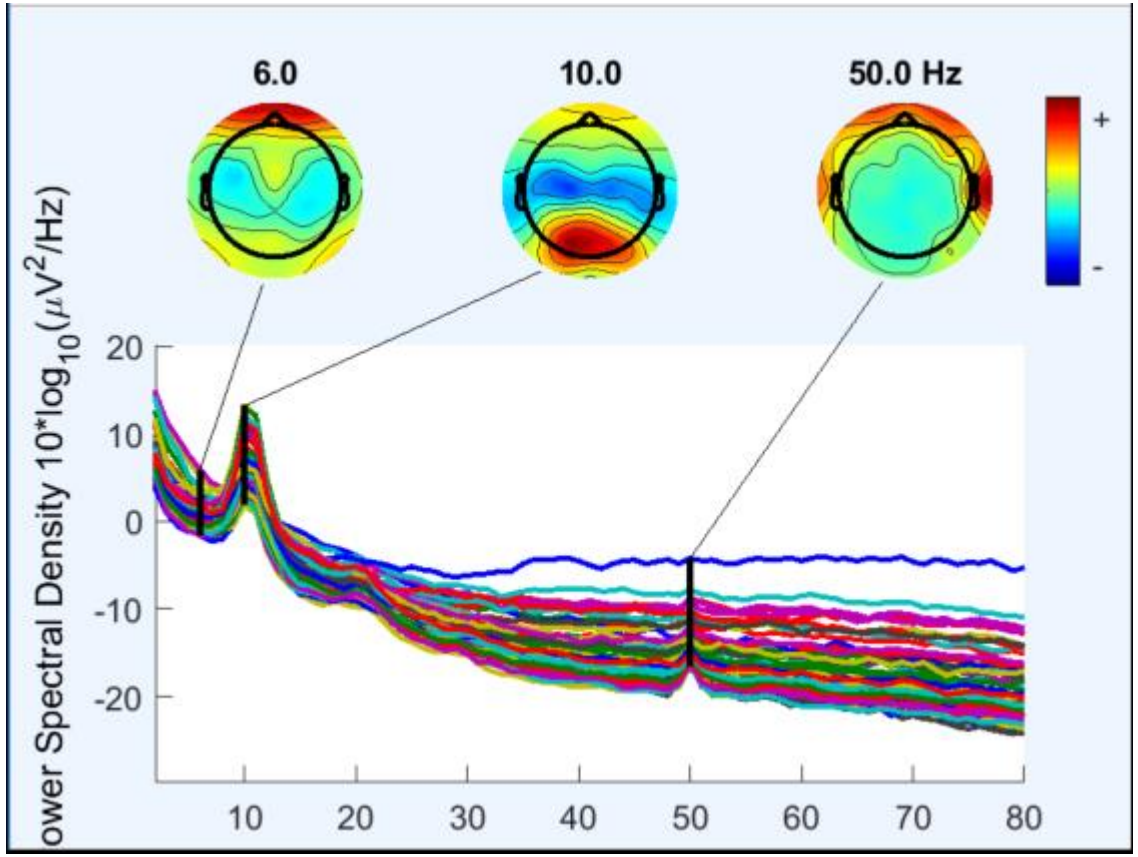
VP2

Cont_reref_blr (original 512 hz)

Continuous data

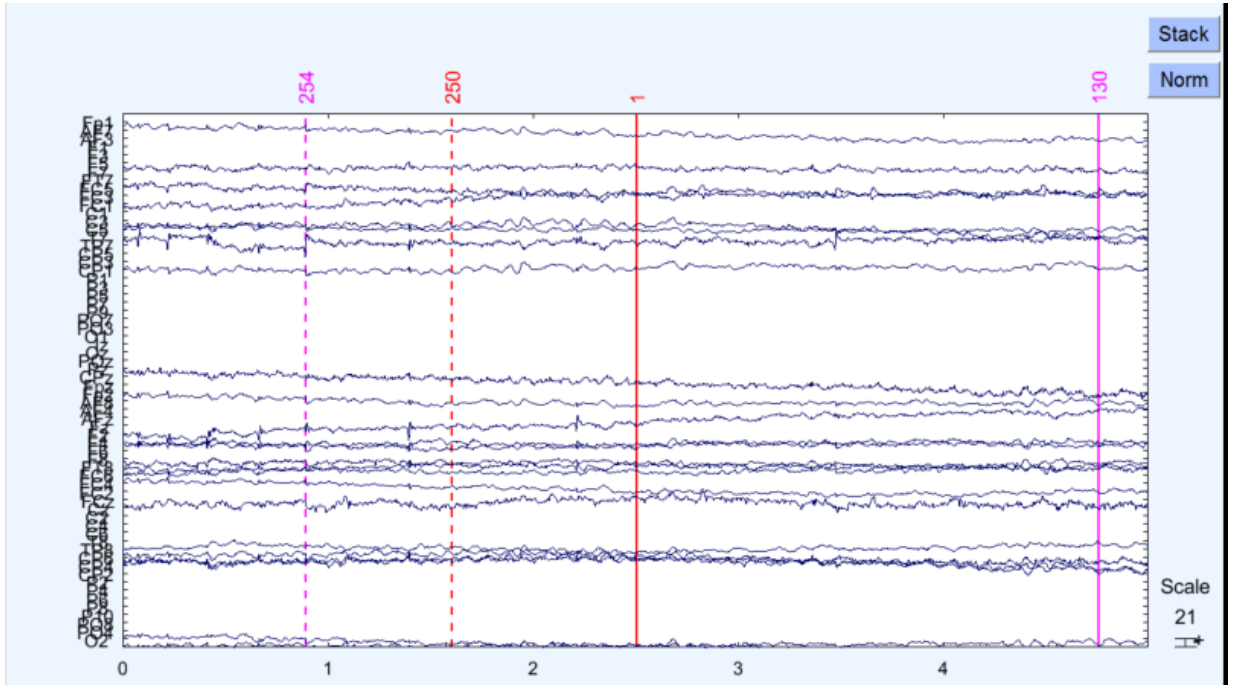


Spectrum

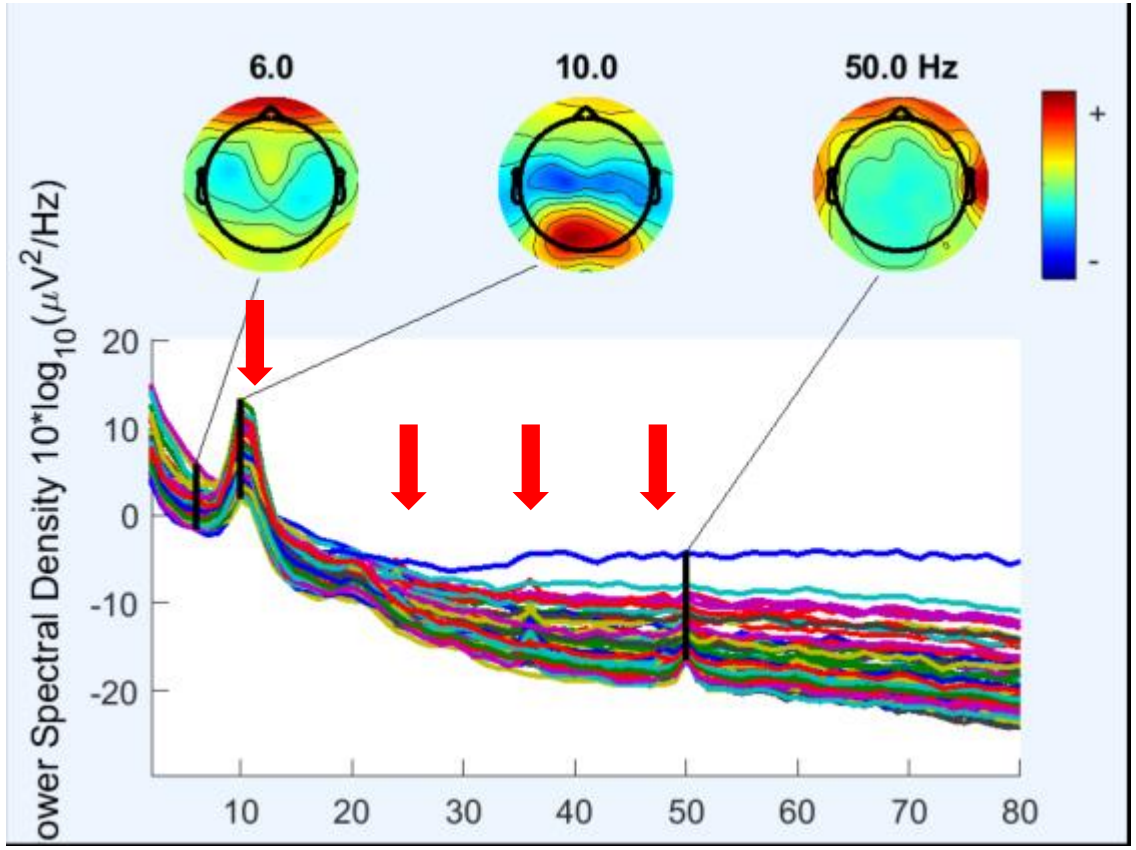


Cont_reref_blr_resampled 500hz

Continuous data



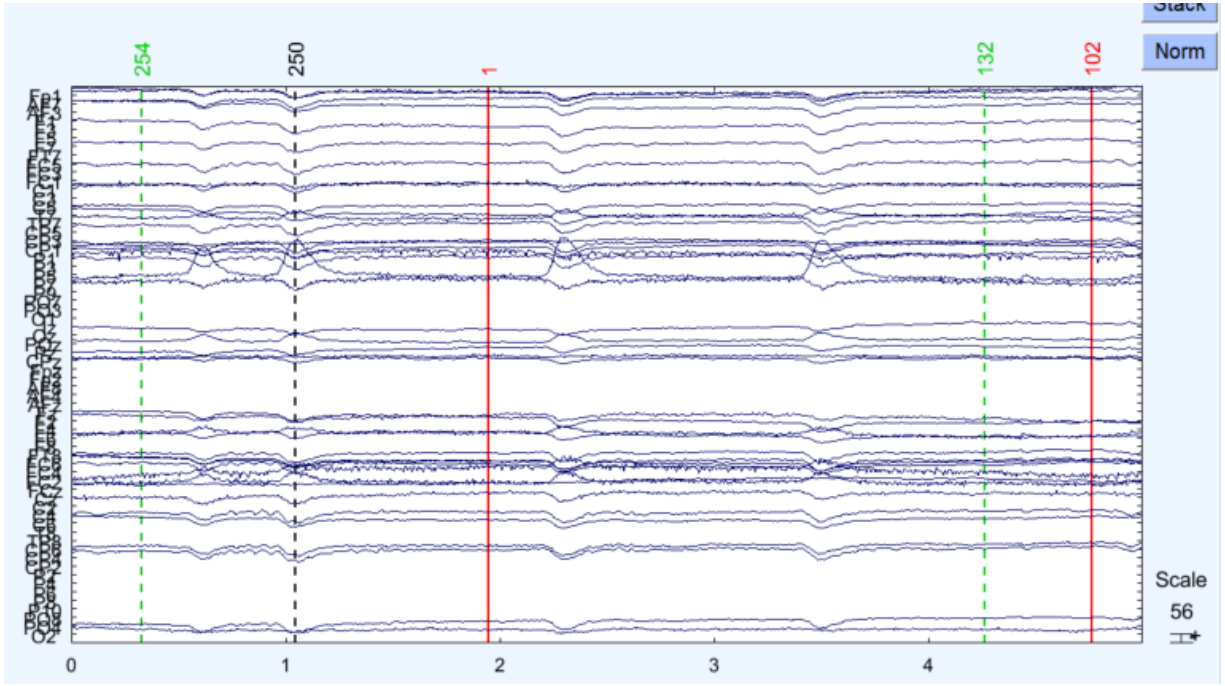
Spectrum



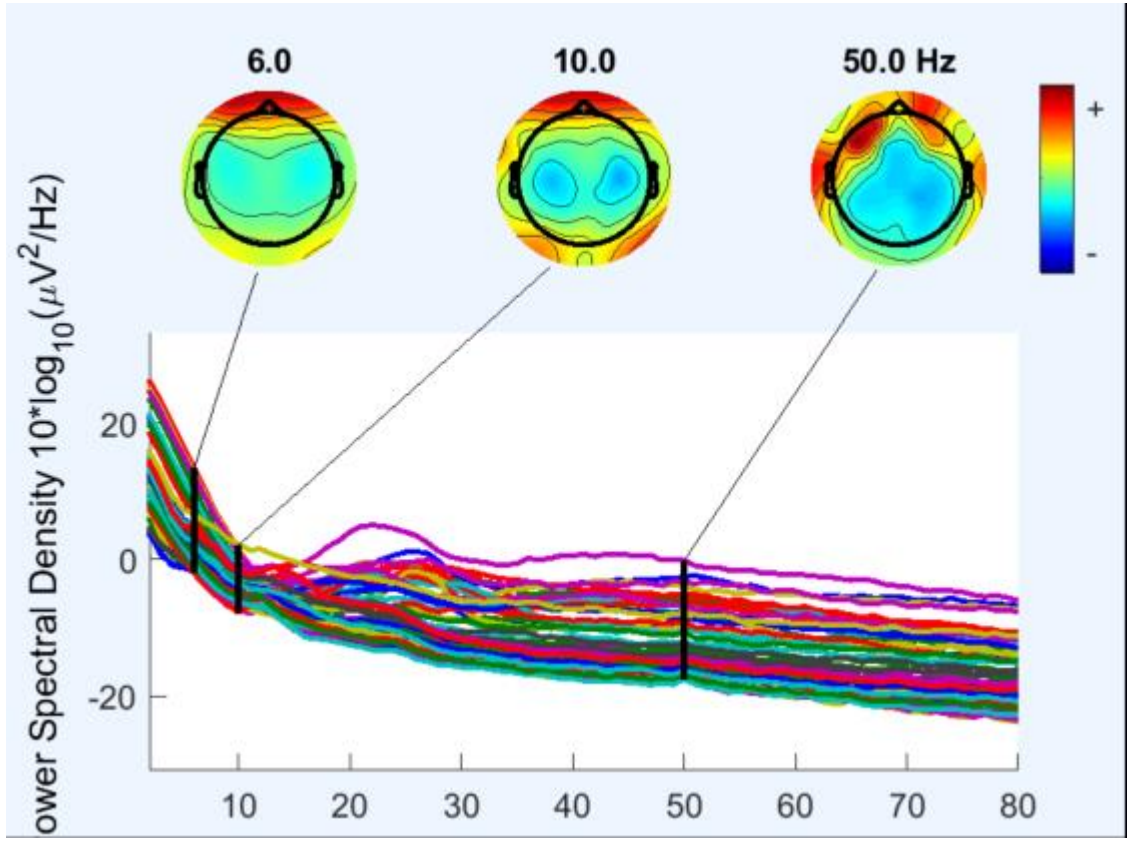
VP5

Cont_reref_blr (original 512 hz)

Continuous data

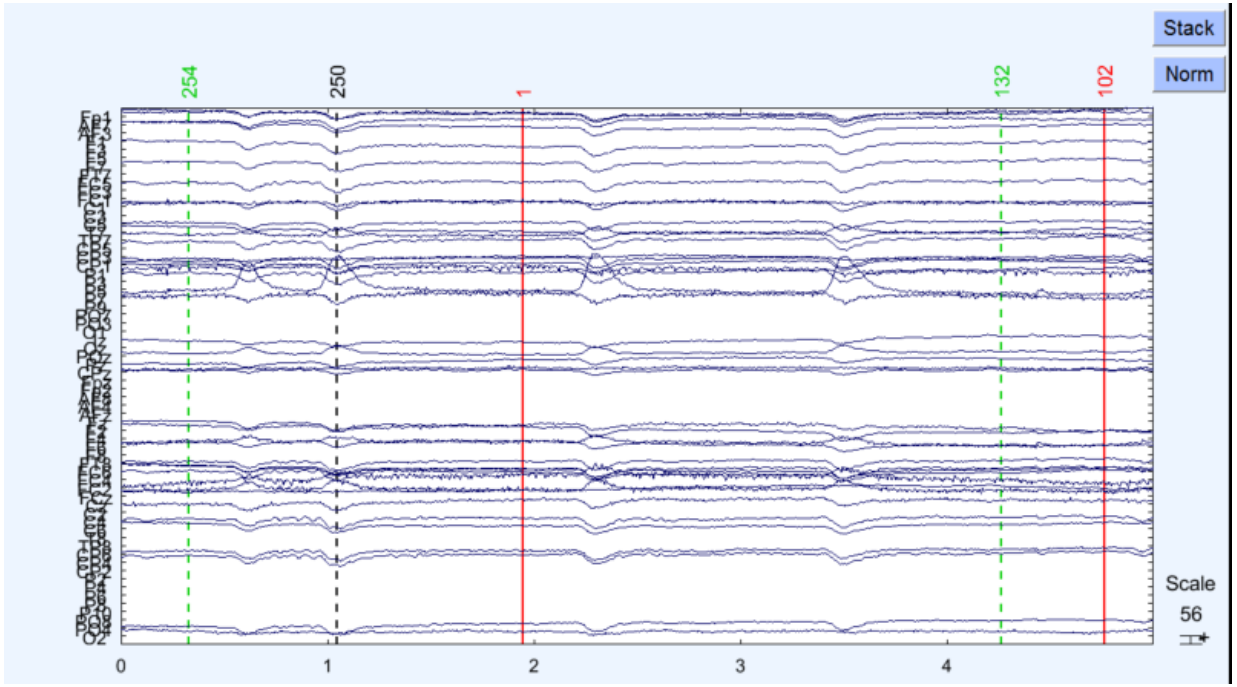


Spectrum

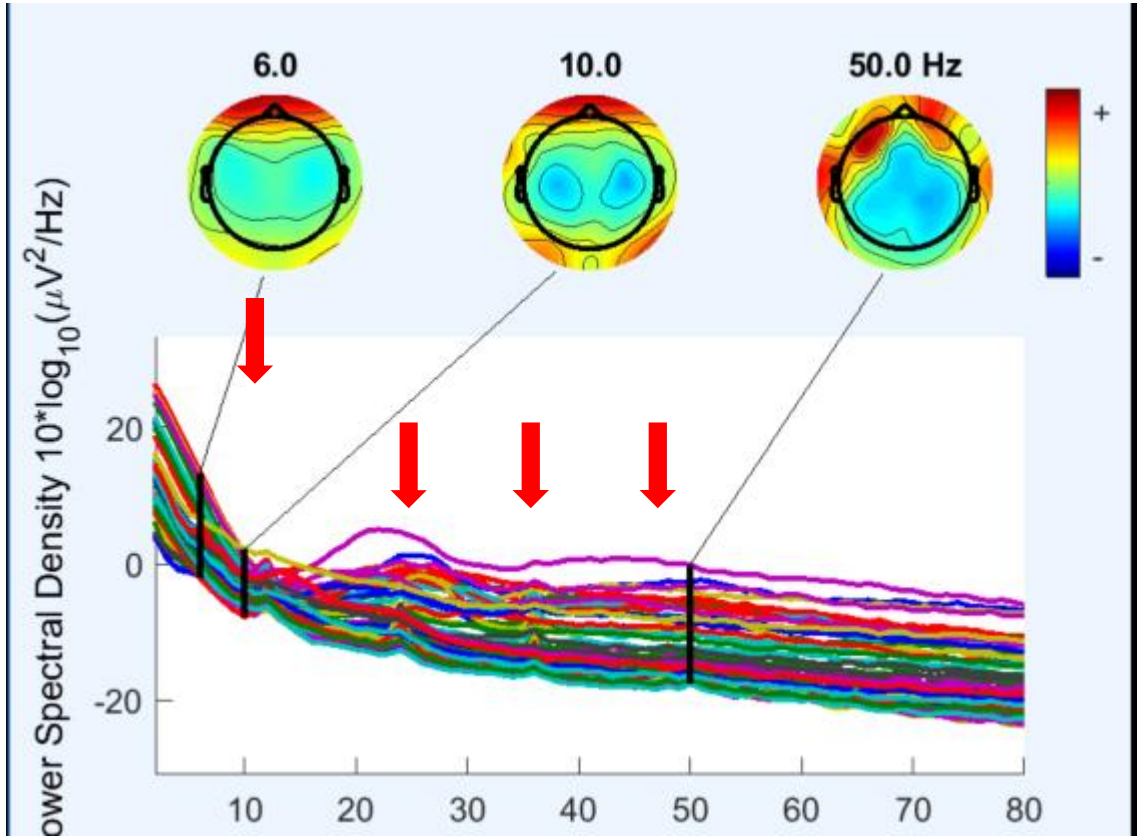


Cont_reref_blr_resampled 500hz

Continuous data



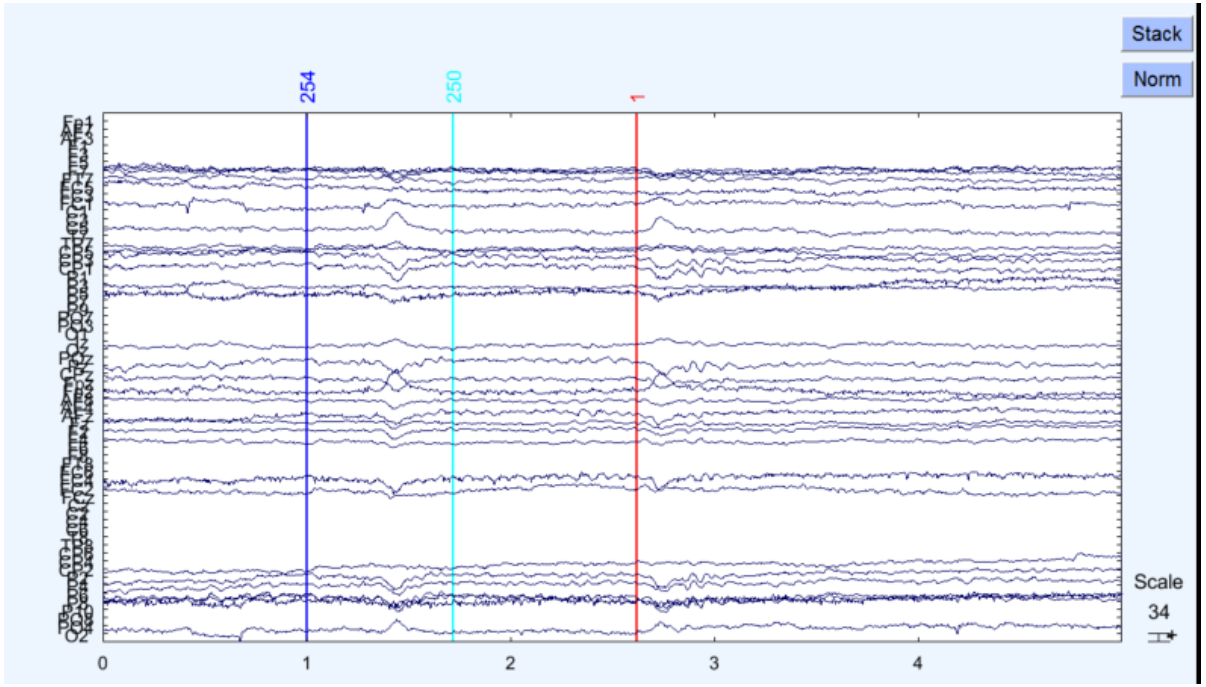
Spectrum



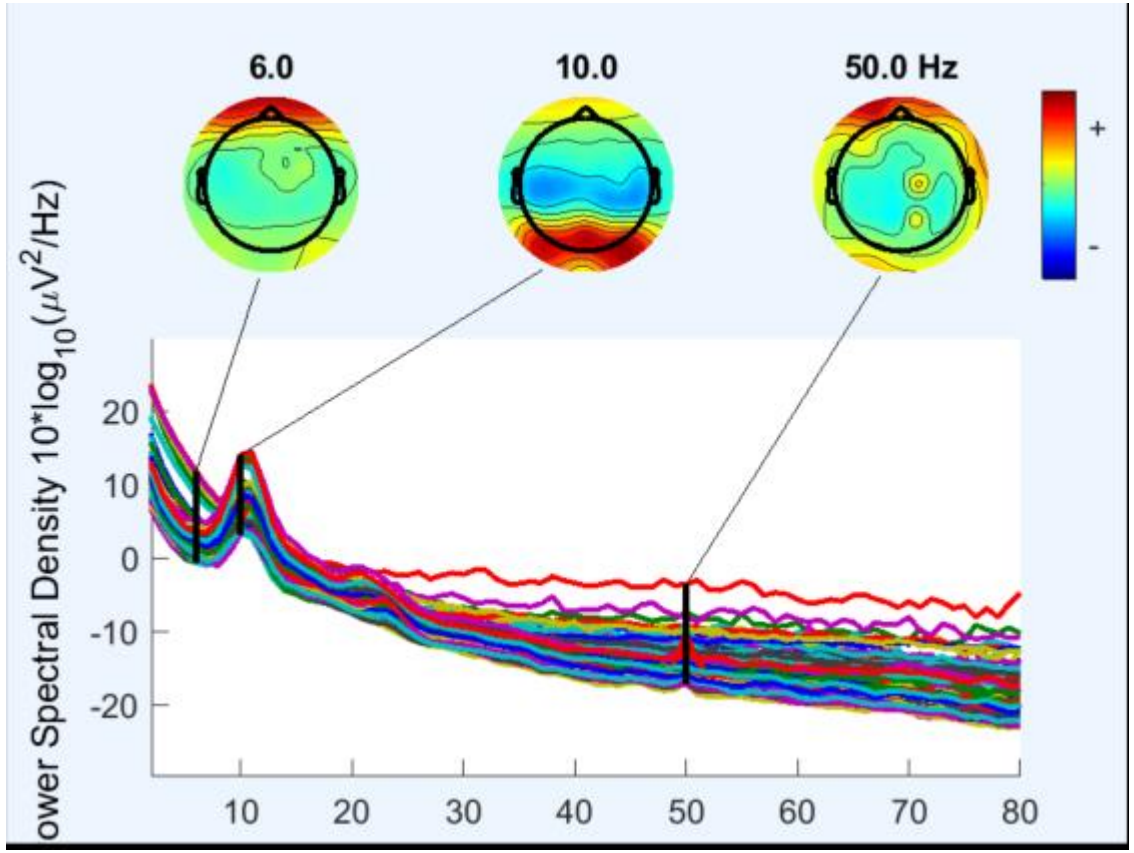
VP3

Cont_reref_blr (original 512 hz)

Continuous data

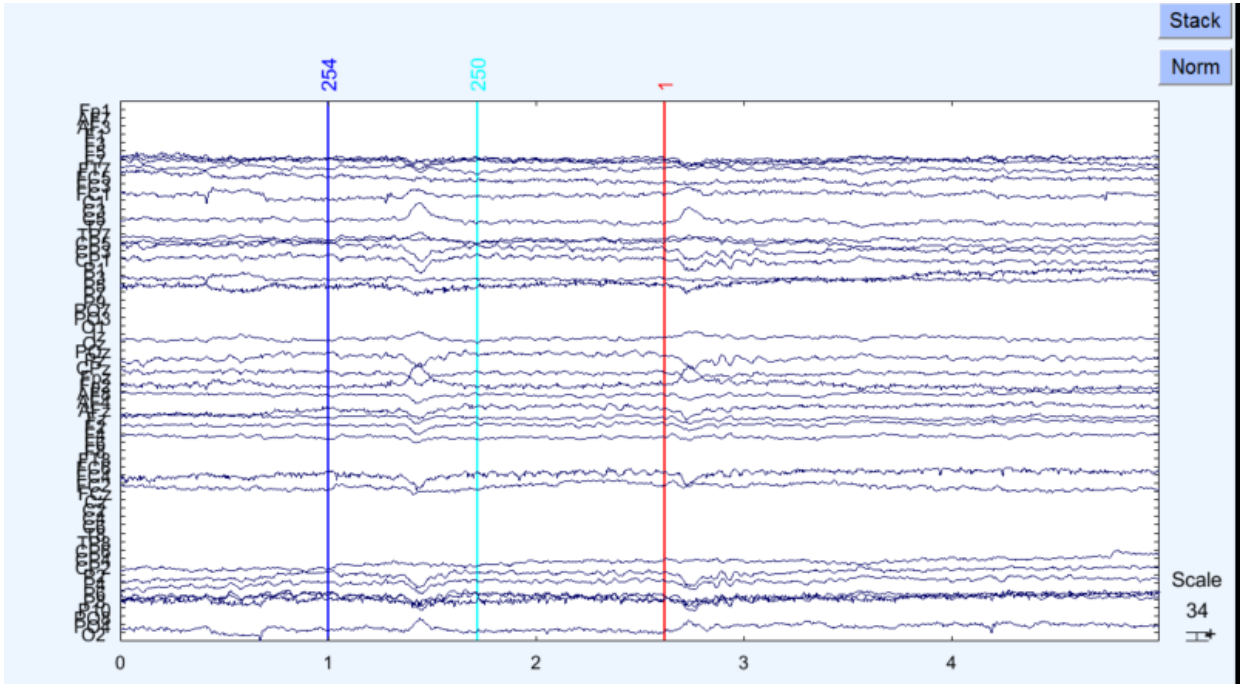


Spectrum

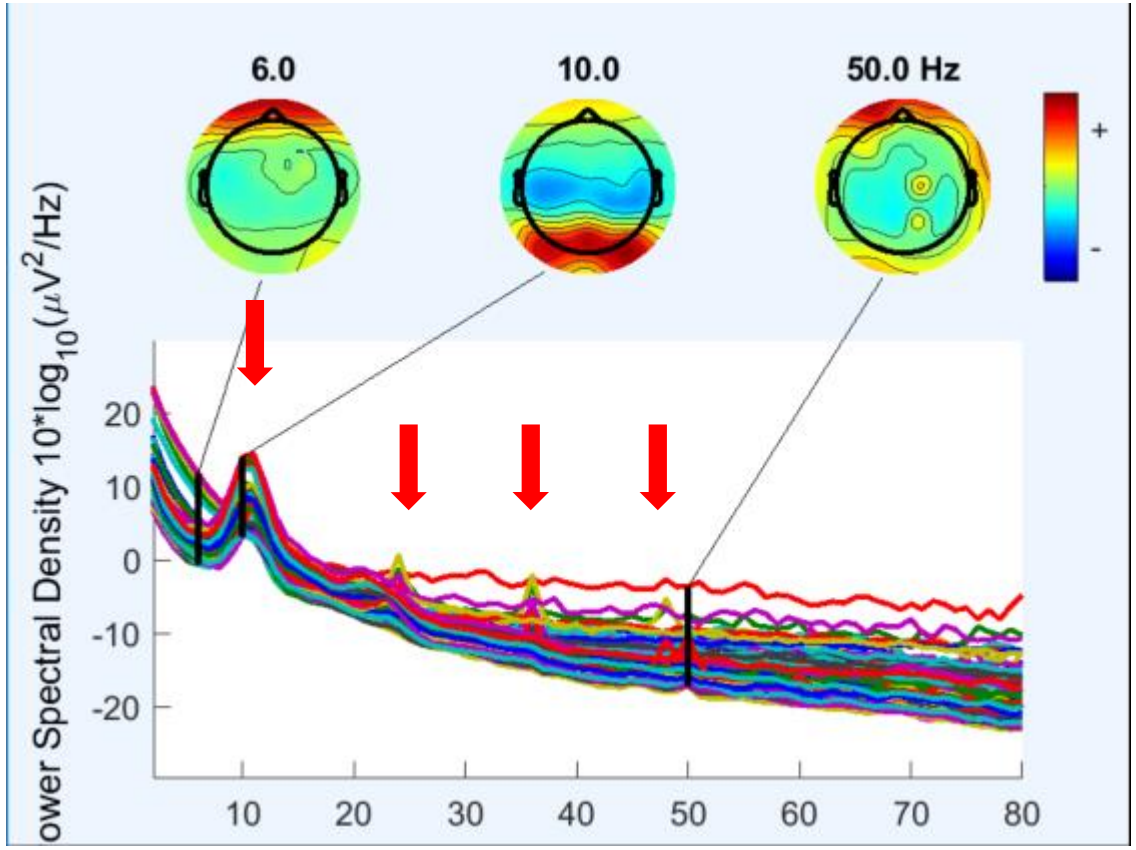


Cont_reref_blr_resampled 500hz

Continuous data



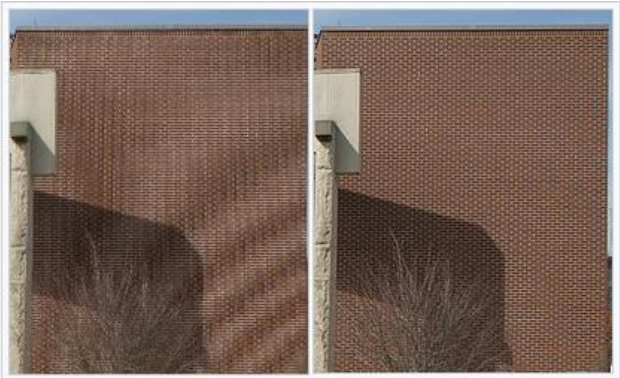
Spectrum



Aliasing effect? → Lowpass filtering before downsampling??

”Usually low-pass filter is necessary before downsampling for anti-aliasing, but EEGLAB function applies the anti-aliasing filter automatically.”

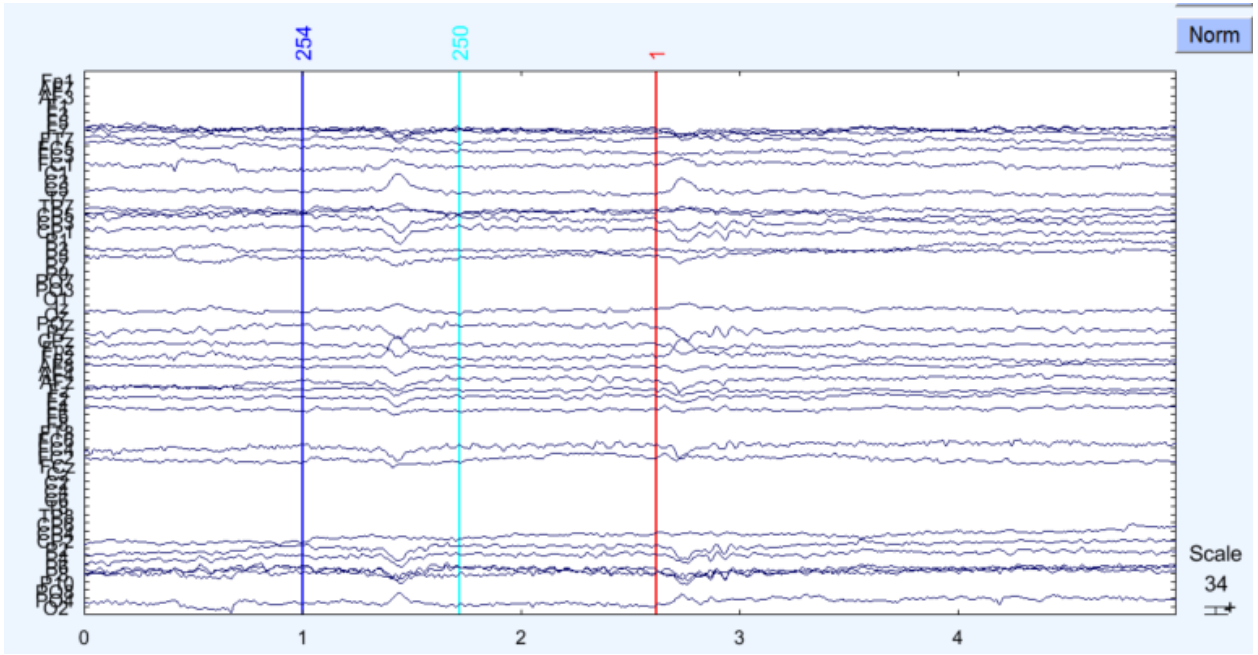
https://sccn.ucsd.edu/wiki/Makoto's_preprocessing_pipeline#Downsample_if_necessary



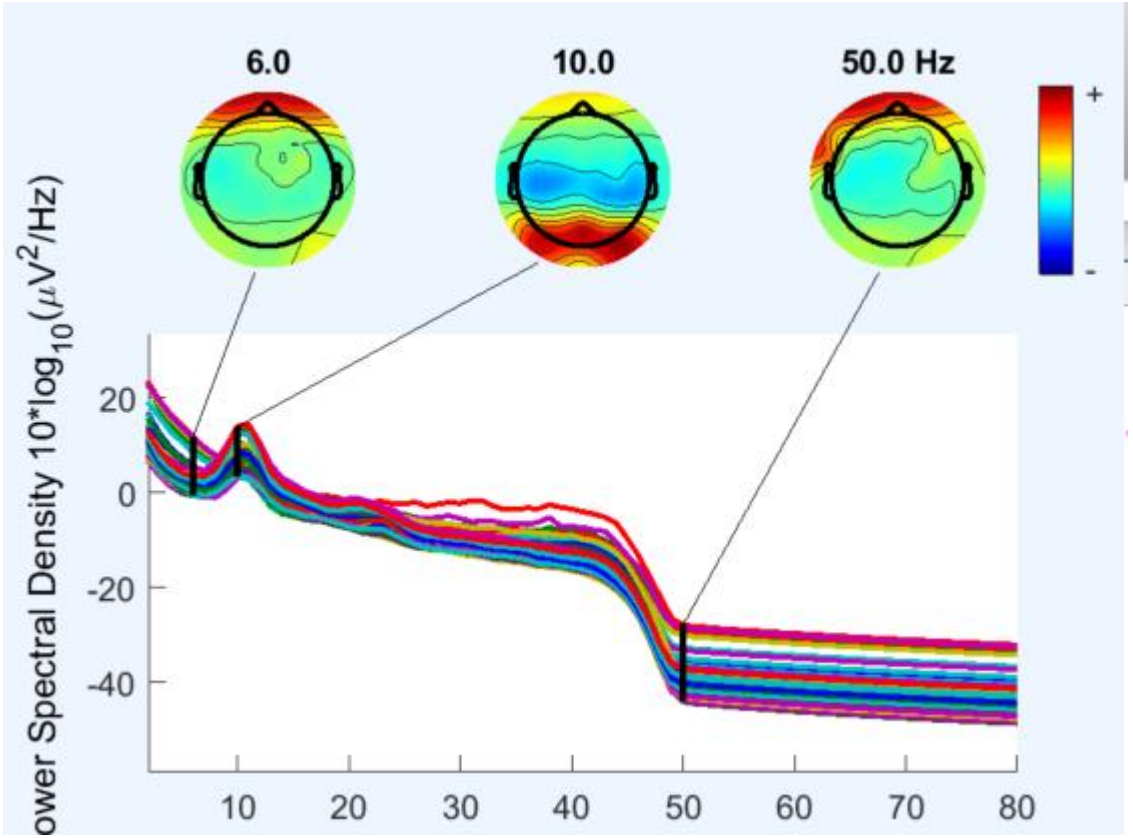
Simulated photographs of a brick wall without (left) and with (right) an optical low-pass filter

Continuous_reref_blr_lowpass filtered 40Hz

Continuous data

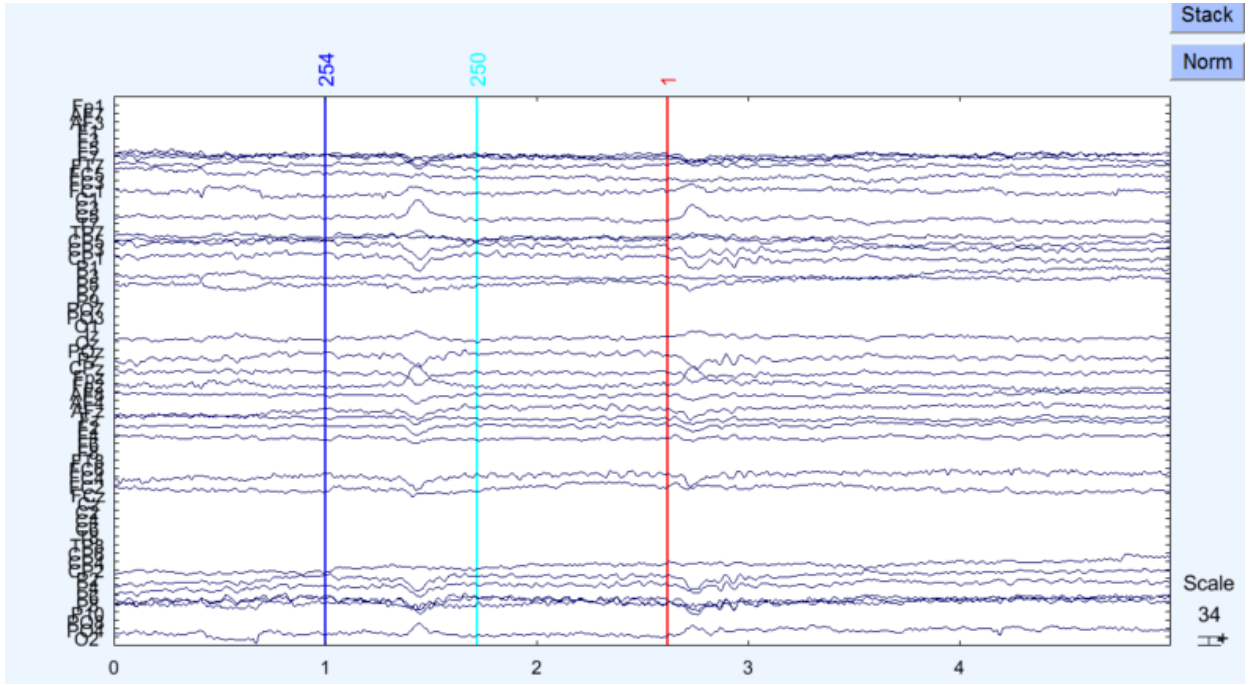


Spectrum

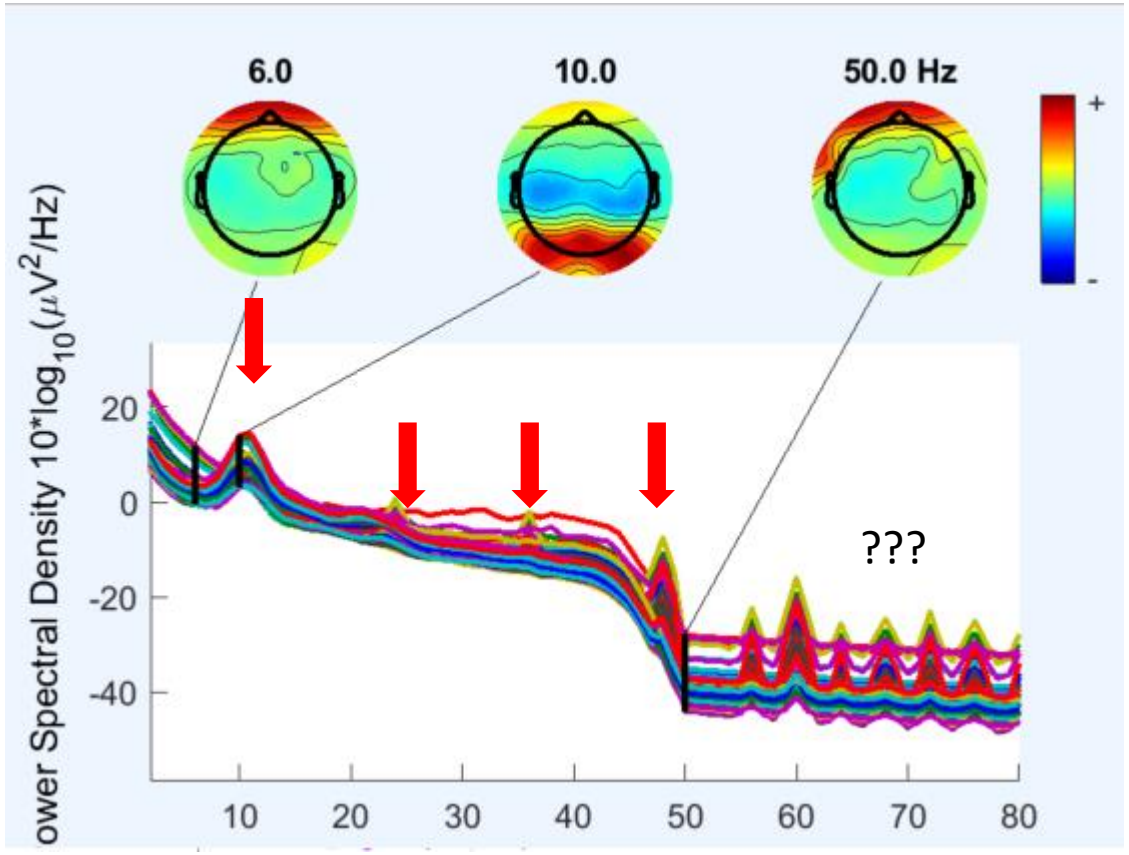


Continuous_reref_blr_lowpass filtered 40Hz-downsampled 500Hz

Continuous data

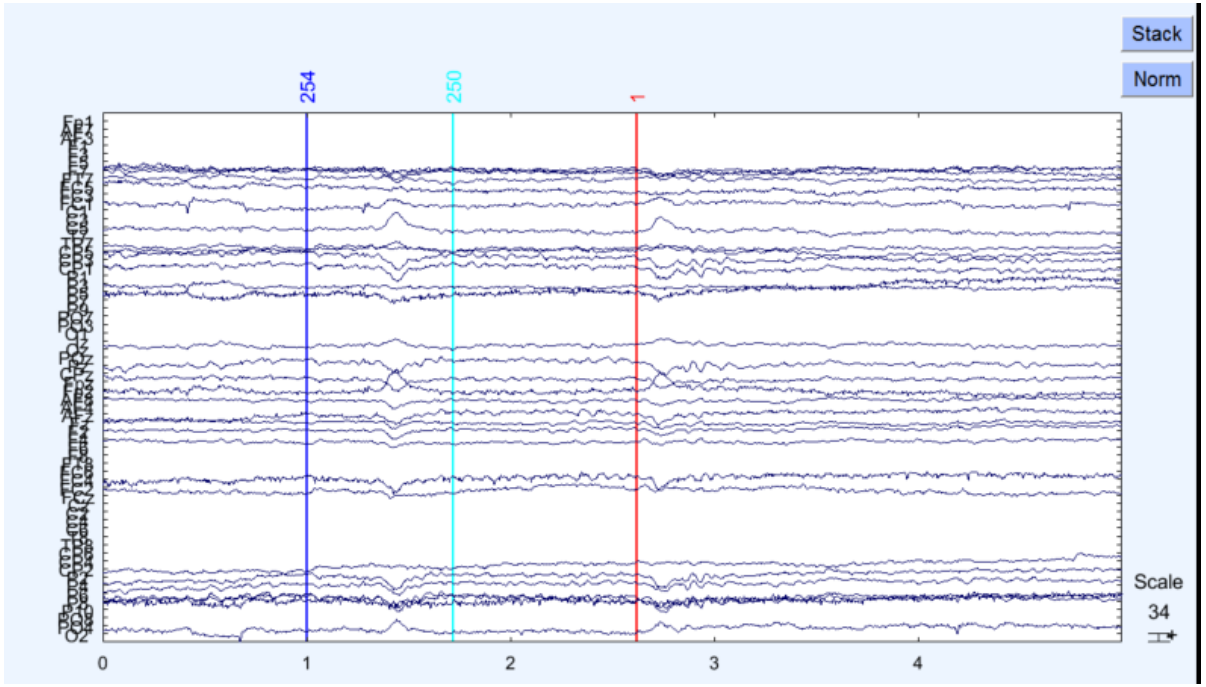


Spectrum

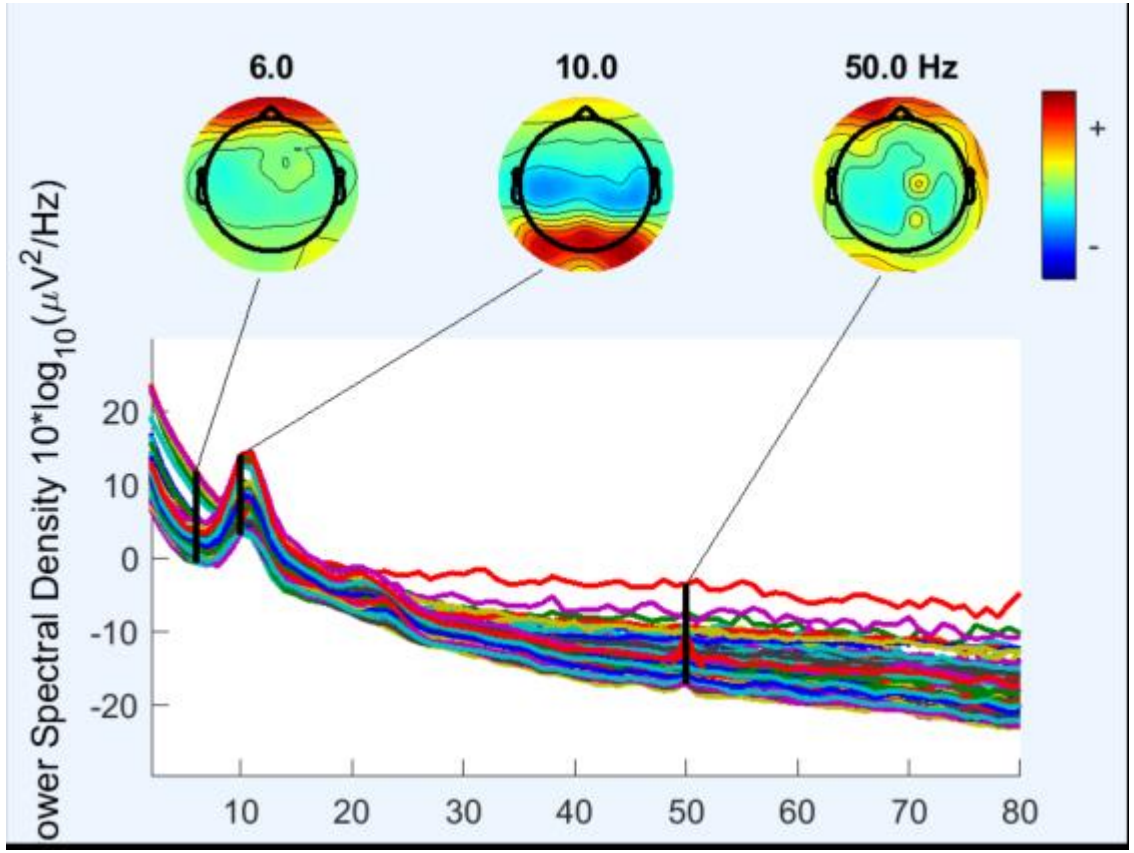


Cont_reref_blr (original 512 hz)

Continuous data

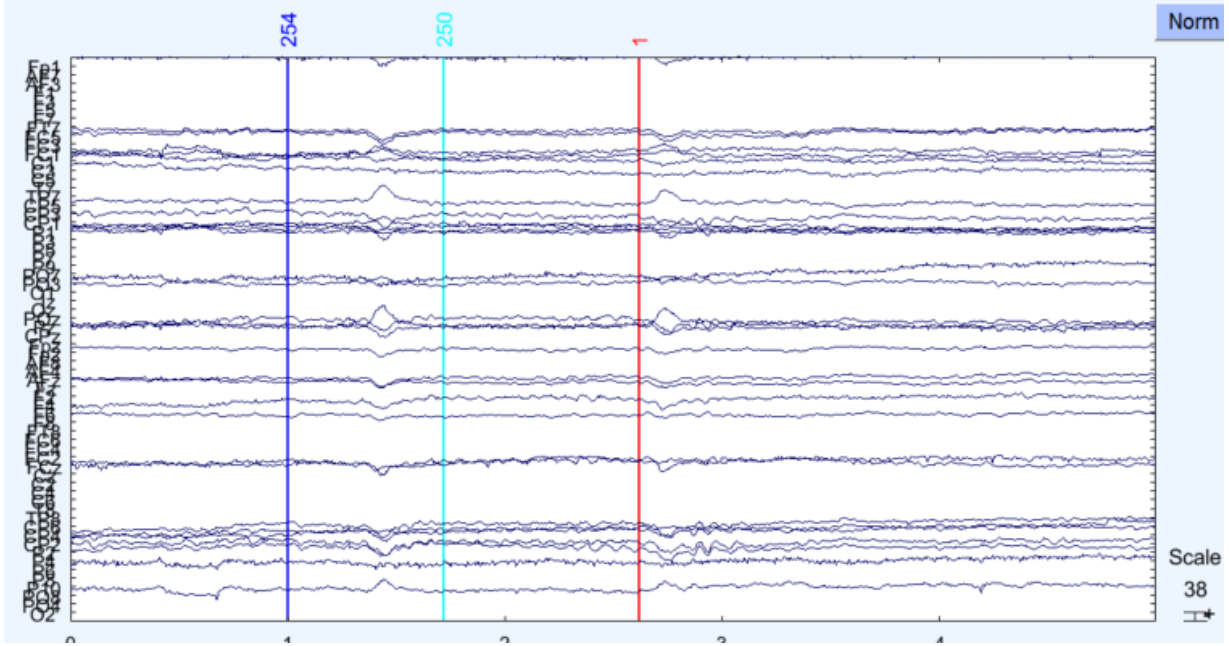


Spectrum

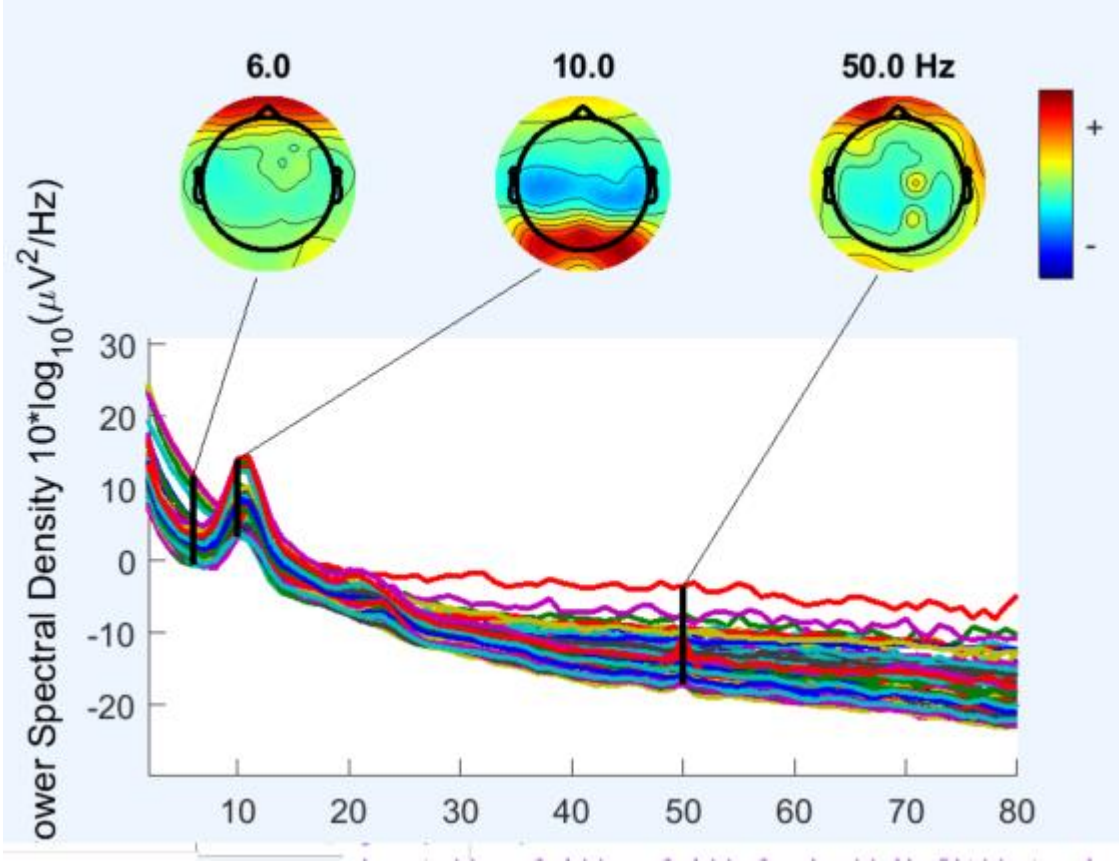


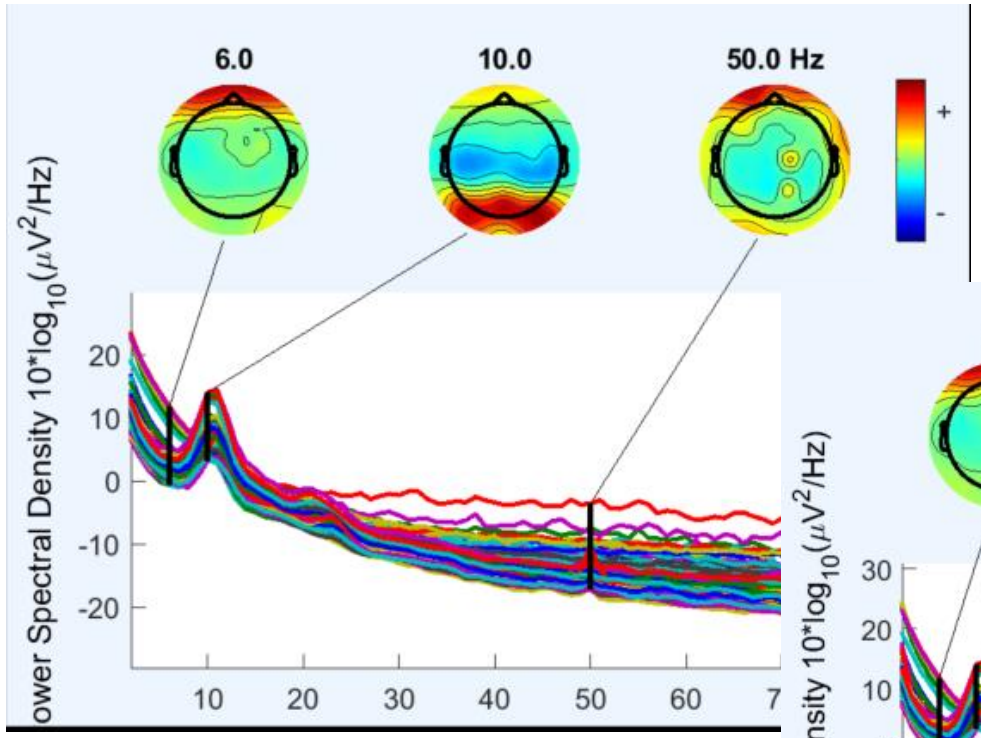
Cont_reref_blr (original 256 hz)

Continuous data

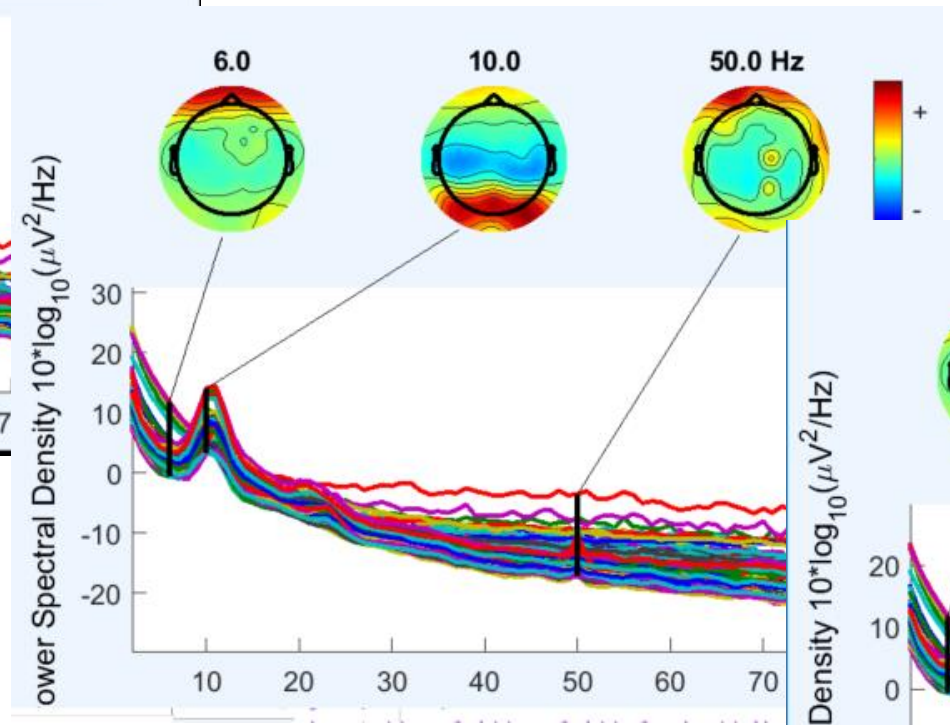


Spectrum

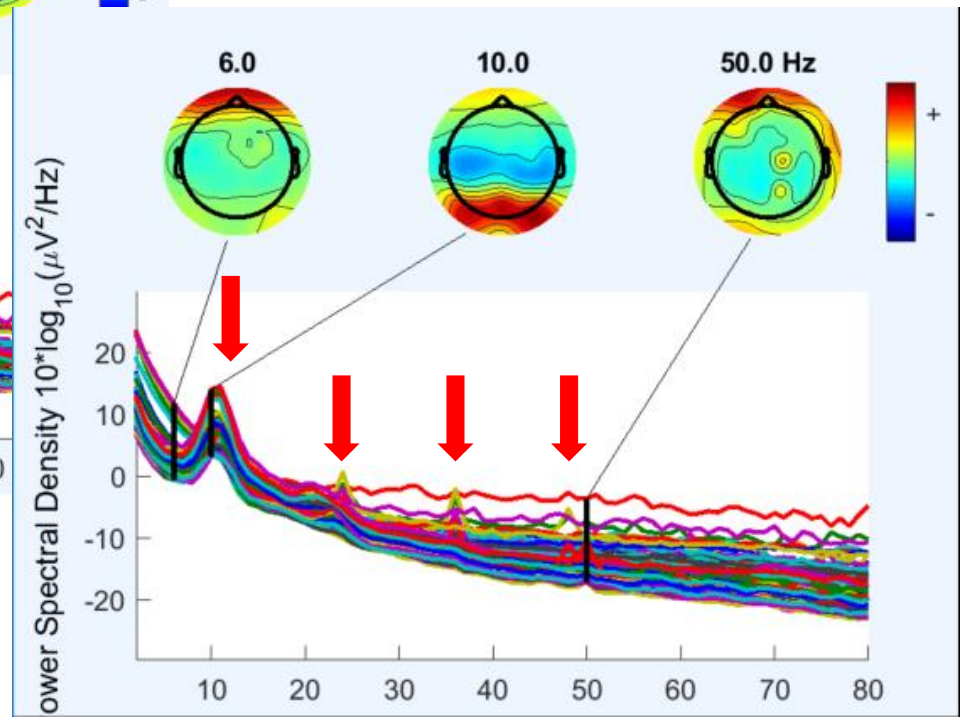




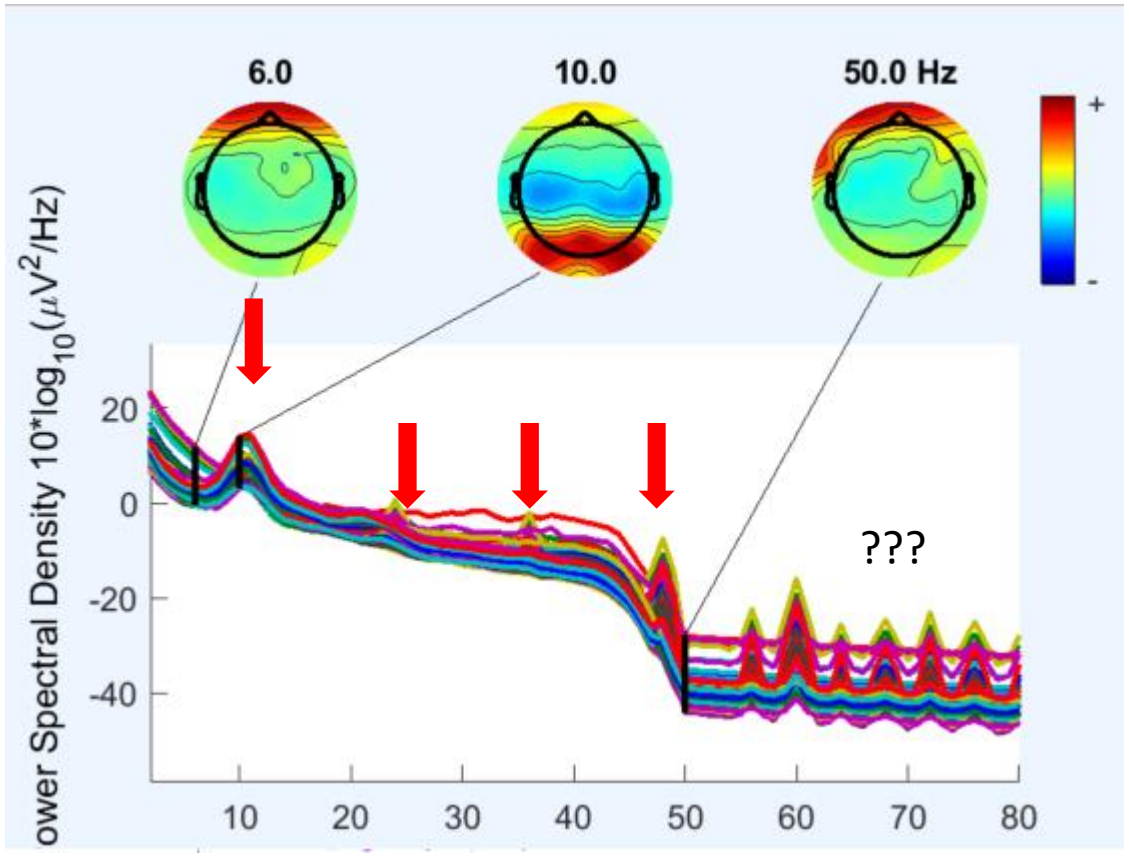
512 Hz



256 Hz

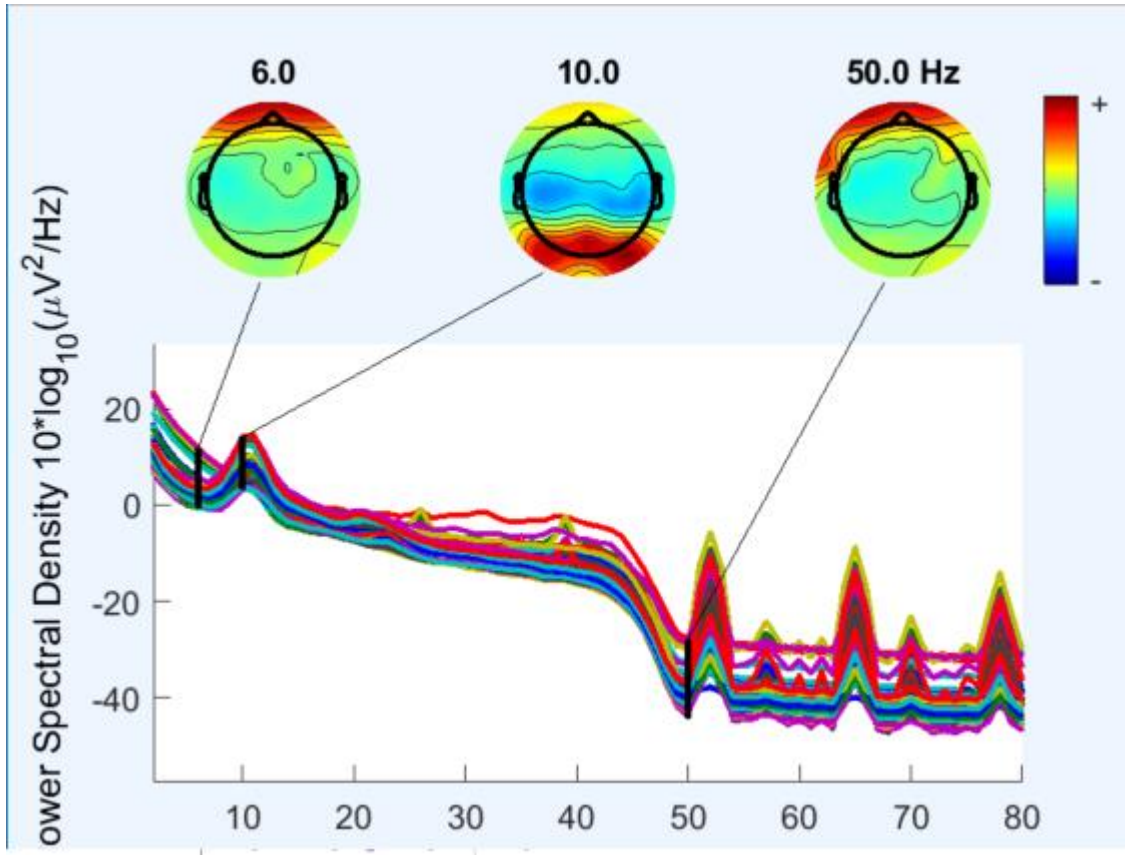


500 Hz



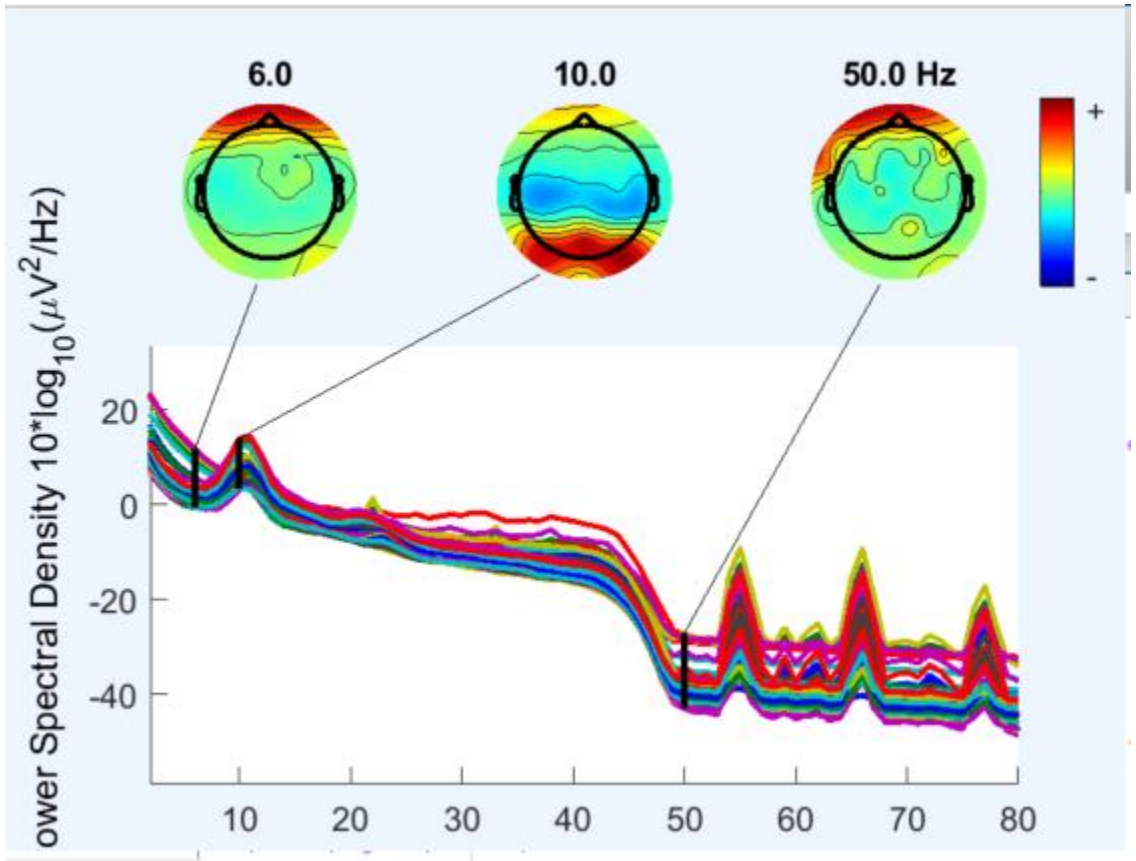
500Hz = -12

12 24 36 48 60



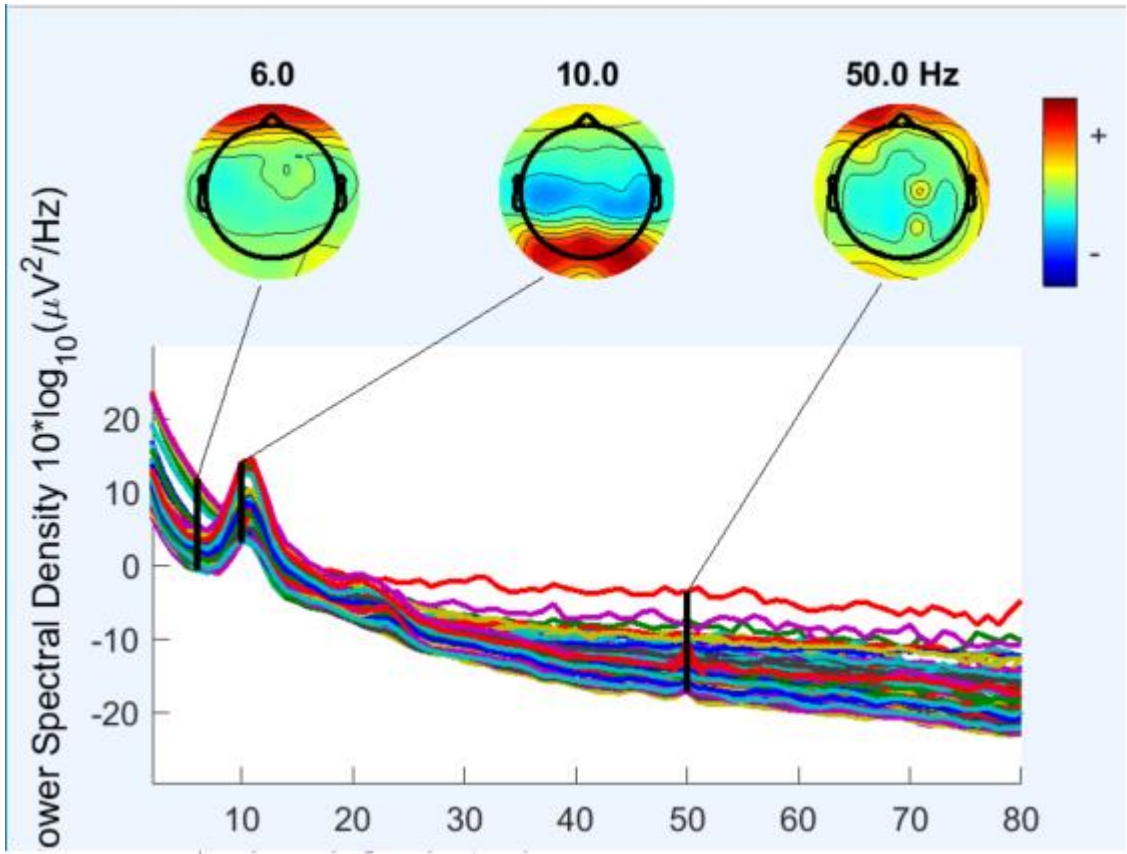
499Hz = -13

13 26 39 52

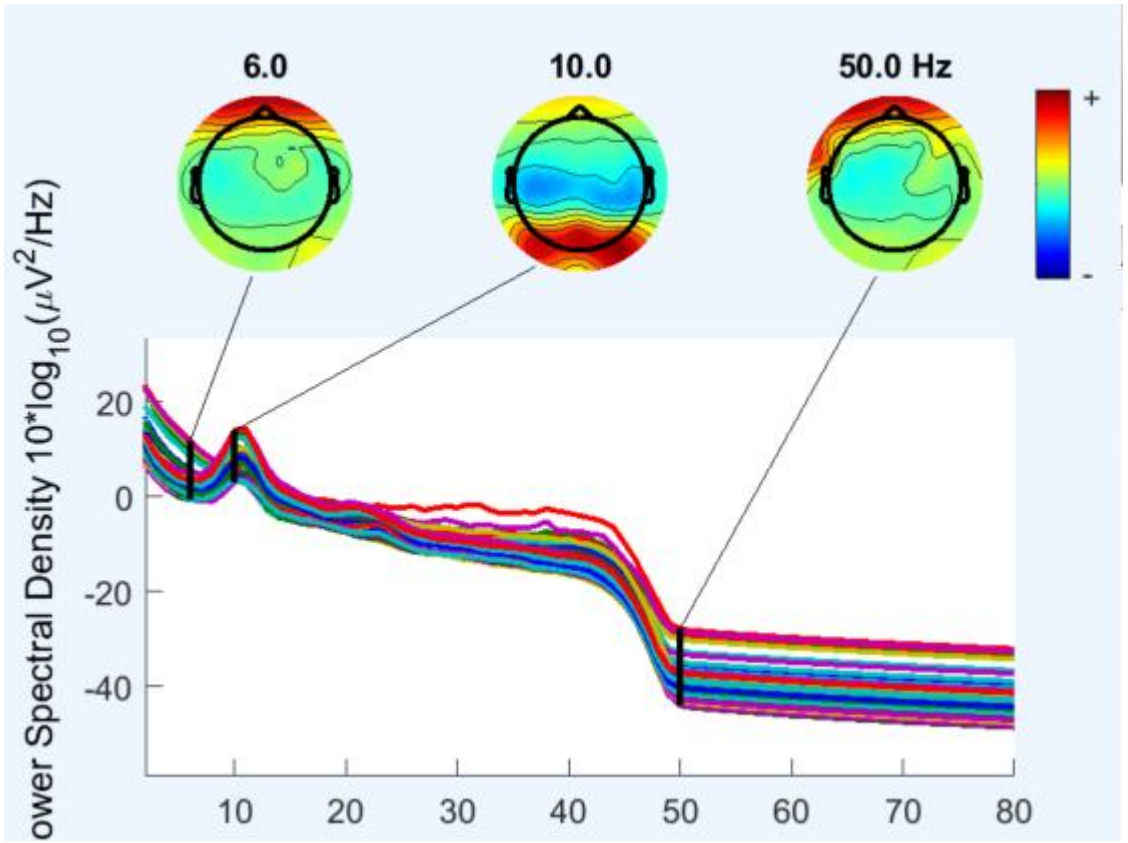


501Hz = -11

11 22 33 44 55



497 Hz



497 Hz = -15