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The effect of brain stimulation on connectivity *within* one brain region

Targeted brain stimulation, e.g. transcranial electrical direct current stimulation (tDCS), can change the activity level in a region and improve cognitive performance. However, it is unclear whether stimulation can also lead to permanent changes of the system with a potential of long-term negative side effects. This project will test how connectivity changes in stimulated and adjacent non-stimulated brain tissue.

This project consists of the following steps:

- Extend an existing VERTEX Matlab model of electrical stimulation, developed by Chris Thornton, to check long-term changes in connectivity.
- To test how the change in connection strength depends on the distance to the stimulation site.
- To test whether tissue that is too far away for a direct stimulation effect will still show long-term changes in connectivity through interactions with stimulated tissue.
- To test what duration of stimulation is needed to lead to connectivity changes in stimulated and non-stimulated tissue.