

**Large Scale Optical Voltage Imaging Using Genetically Encoded Probes: Novel Opportunities  
to Link Theory with Neurobiology**

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Recently developed genetically encoded voltage indicators (GEVIs) and transgenic mice that express these fluorescent probes in selected neuronal populations enable transcranial imaging of cortical circuit dynamics (electrical signaling) at high spatial and temporal resolution (a few ms x a few  $\mu\text{m}$ ), with high coverage (across both cortical hemispheres), over extended time periods (imaging sessions repeated over many week), and in live awake behaving animals. This approach provides large scale experimental data that provide new opportunities to constrain and test theoretical predictions and models.

**Acknowledgments:** Work of my laboratory has been supported by grants from the Human Frontiers Science Program (HSFP) and National Institutes of Health (NIH)

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