

Contactless measurement of retinal activity using optically pumped magnetometers

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Because OPM sensors can be placed more flexibly and can measure neuronal structures other than neocortex, we used OPM sensors to measure human retinal activity following flash stimulation. Comparison of the magnetoretinographic (MRG) activity to a simultaneously recorded electroretinogram showed the familiar flash-evoked potentials (a-wave and b-wave) and shared a highly significant amount of information with the electroretinogram recording. Full details of this study are available as a pre-print [1]. Current work focuses on whether high frequency retinal activity (100-150 Hz) can also be measured using OPMs.

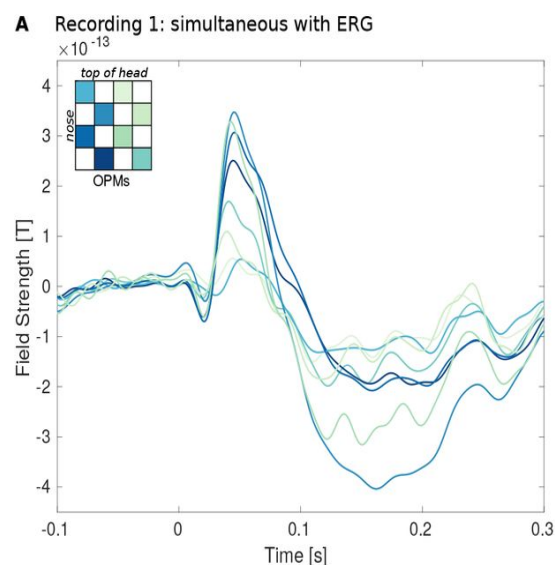


Figure 1: OPM recording of retinal activity in response to light flashes. Traces show activity measured by OPM sensors, averaged across participants during a simultaneous ERG recording of the contralateral eye.

References

- [1] Westner, B. U., Lubell, J. I., Jensen, M., Hokland, S., & Dalal, S. S. (2021). Contactless recordings of retinal activity using optically pumped magnetometers. *BioRxiv*, 2021.05.18.444672.