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Electromagnetic Shielding for Low Level Biological Signal Detection. SARAH EVANS, MARY FOX, ARTHUR SWEENEY, JACOB MOLDENHAUER, DREW STENESEN, University of Dallas — Electromagnetic interference makes the detection of low-level electrophysiological signals difficult without shielding. This study was conducted to limit the noise detected by a DC amplifier to better collect electroretinogram (ERG) data of fruit flies [*Drosophila*]. A Faraday Cage was built with 1.24mm spacing copper mesh. The cage was optimized for shielding ambient electromagnetic interference of 10GHz and smaller. Inside the cage, a neutral ground connection was added, so low level biological signals (ERGs) were the only signals picked up within by the highly sensitive probes. Coaxial cables connected components of the experiment within the cage to those outside of it. The cables ensured that ambient signals would be blocked from the information leaving the cage. The ERGs collected within the cage were isolated to the signals given by the photoreceptors of the fruit flies. Previously, little information was discernible because of the excess noise. With these shielding methods, the acceptable depiction of the fruit fly ERG is distinguishable.

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