

Abstract Submitted
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Using a Large Ring Laser Gyroscope (RLG) to Understand the Torsional Components of Near-Field Seismic Events¹ ADAM JACOBS, Hendrix SPS Chapter — Seismographs are able to accurately measure translational components of seismic events, i.e. the North-South, East-West, and Up-Down (z) components. However, there has recently been a renewed interest in measuring the torsional components of such events. Preliminary results from a triangular, large ring laser (measuring 17 meters on a side) suggest that RLGs could be a vital tool in opening up this relatively unexplored aspect of seismology. The ring laser has produced data similar to that of seismographs in response to three near-field earthquakes in Tennessee, the Gulf of Mexico, and Mexico. In addition to this, Fourier analysis of voltage variations caused by perturbations of the ring laser during these near-field events has yielded several interesting results not given by traditional seismographs. These results include the increased effectiveness of RLGs for near-field measurements versus far-field, the torsional resonances excited by the detected earthquakes, and perhaps the mechanism which generates torsion in an earthquake. The ring laser's results, their implications, and a potential model will be presented.

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