

Abstract Submitted
for the APR15 Meeting of
The American Physical Society

Monitoring Rotational Components of Seismic Waves with a Ring Laser Interferometer JACKSON GAKUNDI, ROBERT DUNN, Hendrix College — It has been known for decades that seismic waves can introduce rotation in the surface of the Earth. There are historic records of tombstones in Japan being rotated after large earthquakes. Until fairly recently, the primary way to detect ground rotation from earthquakes was with an array of several seismographs. The development of large ring laser interferometers has provided a way for a single instrument to make extremely sensitive measurements of ground motion. In this poster, a diagram of a large ring laser will be presented. For comparison, seismograms recorded with a ring laser and a collocated standard seismograph will be presented. A major thrust of this research is the detection and analysis of seismic responses from directional drilling sites in Arkansas and Oklahoma. There are suggestions that the injection of pressurized water used to fracture gas bearing shale may cause small earthquakes. The Arkansas Oil and Gas Commission ordered the closing of certain waste water disposal wells in North Central Arkansas. Apparently, these wells injected waste water into a previously unknown fault causing it to slip. An attempt is being made to determine if the seismic wave patterns from earthquakes generated near directional drilling sites differ from those generated miles away.

Jackson Gakundi
Hendrix College

Date submitted: 09 Jan 2015

Electronic form version 1.4