Abstract Submitted
for the TSF12 Meeting of
The American Physical Society

A Computer Program to Search for Gravity Waves[1] RYAN STATEN, Southwestern University — The Laser Interferometer Gravitational Wave Observatory (LIGO) project uses large scale laser interferometers in an attempt to detect gravitational waves predicted by the general theory of relativity. When a gravitational wave is incident on an arm of the interferometer, the electromagnetic waves corresponding to the laser light in the arm and the arm itself are either stretched or compressed based on the nature of the gravitational wave. This changes the wavelength of the light in the arm compared to that of the light continuing to enter the arm from the laser source, which correspondingly changes the arrival time of the returning photons (or wave fronts). I have designed a program that analyzes this, showing the expanding and contracting electromagnetic waves in an interferometer arm, and calculating the round trip travel time of the wave fronts.

[1]This work was done as part of an REU at UT Brownville.

Steven Alexander
Southwestern University

Date submitted: 21 Sep 2012 Electronic form version 1.4