Abstract Submitted
for the TSF09 Meeting of
The American Physical Society

Replicating the Michelson-Morley Experiment
CHARLES ROGERS, AAPT, RICHARD SELVAGGI, APS — The famous 1887 Michelson-Morley experiment measured the propagation of light in a rotating interferometer. For more than one hundred and twenty years, the data obtained from this experiment have been examined by many interested professionals. These investigations have raised numerous questions concerning the analysis and interpretation of the originally published data. With interest in replicating this experiment, we have designed a new rotating interferometer of the same scale as the original experiment. This apparatus is composed on a standard four foot by six foot optical breadboard supported on a cylindrical float inside a concentric cylindrical tank. The interferometer consist of sixteen adjustable front surface mirrors, and a pellicle beamsplitter arranged in the same geometry as used in the original experiment. The interferometer is rotated smoothly by the equivalent of a 2-meter diameter brushless motor. The data collected will be analyzed by both original and current theories of operation of this instrument. We will present the details of this experiment.

Charles Rogers
AAPT

Date submitted: 28 Sep 2009 Electronic form version 1.4