Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Interferometry with a photon-number resolving detector[1]
CHRISTOPH WILDFEUER, Louisiana State University, AARON PEARLMAN, JUN CHEN, JINGYUN FAN, ALAN MIGDALL, Joint Quantum Institute, National Institute of Standards and Technology, and University of Maryland, JONATHAN DOWLING, Louisiana State University — In this contribution, we present our studies of Michelson and Fabry-Perot interferometers with a photon-number resolving detector. We show experimentally that with a weak coherent light beam, the use of a photon-number resolving detector leads to a compression of the interference fringes. We also discuss how to improve the sensitivity of interferometers below the shot-noise limit by using nonclassical light and photon-number resolving detectors.

[1]Defense Advanced Research Projects Agency

Christoph Wildfeuer
Louisiana State University

Date submitted: 21 Jan 2009 Electronic form version 1.4