

Abstract Submitted
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Phase estimation with two-mode squeezed vacuum and parity detection: Bayesian analysis KEITH MOTES, Louisiana State University, PETR ANISIMOV, Stony Brook University, JONATHAN DOWLING, Louisiana State University — Using Bayesian analysis we characterized the performance of phase estimation in the Mach-Zehnder interferometer with two-mode squeezed vacuum input. Phase uncertainty, averaged over many trials, is examined and the dependence on photon number is found. As we continue investigating our results we hope to determine the ideal average number of photons to use in a MZI with TMSV and compare it with shot-noise and Heisenberg limited sensitivity. Our scheme works well for small unknown phases but requires a large number of trials and a small number of input photons. In actual implementations of the scheme, a control phase ψ has to be implemented to maintain unknown phase difference at the “sweet spot.”

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