

# Squeezing phase diffusion

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## Abstract

We address the use optical parametric oscillator (OPO) to contrast phase diffusion and demonstrate the reduction of phase diffusion for coherent signal passing through OPO. In particular, we theoretically and experimentally show that there is a threshold value of the phase diffusion amplitude above which OPO can be exploited to “squeeze” phase noise. The threshold depends on the energy of the input coherent state and on the relevant parameters of the OPO, such gain and the input/output and crystal losses.