
Quantum squeezed states

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We present a mutual compensation scheme of three phase fluctuations, originating from the residual amplitude modulation (RAM) in the phase modulation process, in the bright squeezed light generation system. The influence of the RAM on each locking loop is harmonized by using one electro-optic modulator (EOM), and the direction of the phase fluctuation is manipulated by positioning the photodetector (PD) that extracts the error signal before or after the optical parametric amplifier (OPA). Therefore a bright squeezed light with non-classical noise reduction of 13.8 ± 0.2 dB is obtained. By fitting the squeezing and antisqueezing measurement results, we confirm that the total phase fluctuation of the system is around 3.1 mrad. The fluctuation of the noise suppression is 0.2 dB for 3 hours.



Short Bio:

Yaohui Zheng received the M.S degree in optical engineering, in 2004 and the Ph.D degree in the field of laser technology from Shanxi University, China, in 2009.

Currently, he is a professor at the Institute of Opto-Electronics, Shanxi University, China.