ONLINE ISSN : 1349-6603
PRINT ISSN : 0387-0200

The Review of Laser Engineering
Vol. 31 (2003) , No. 9 p.592

[Image PDF (1211K)] [References]

Generation of Quantum-Correlated Twin Beams and Its Application

Katsuyuki KASAI[1)]

1) Kansai Advanced Research Center, Communications Research Laboratory

(Received: April 8, 2003)

Abstract: The signal and idler beams from a non-degenerate, above threshold, optical parametric oscillator have a strong quantum correlation, which are called twin beams. This correlation arises from the simultaneous generation of the signal and idler photons in the form of twin pairs of photons through the parametric down conversion, and the generated twin beams have exactly the same photon statistics. As a result, the fluctuations on the difference between the intensities of the twin beams are reduced with respect to the shot noise limit, that is, intensity-difference squeezing. We give a comprehensive overview of the generation of twin beams using the optical parametric oscillator, and the applications exploiting the quantum correlation of twin beams are presented.

Key Words: Optical parametric oscillator, Quantum noise, Squeezing, Twin beams, Quantum correlation

[Image PDF (1211K)] [References]

Download Meta of Article[Help]
RIS
BibTeX

To cite this article:
Katsuyuki KASAI: The Review of Laser Engineering, Vol. **31**, (2003) p.592 .

doi:10.2184/lsj.31.592
JOI JST.JSTAGE/lsj/31.592