

# International Conference on Nurturing Sustainability through Innovations in Science and Technology for Global Welfare



Contribution ID: 163

Type: Oral

## Generation Ideal Quantum Entanglement State Requires Infinite Three Mode Squeezing

The entanglement effects of light in the fundamental mode and harmonic mode in the third harmonic generation are investigated up to the Second -order Hamiltonian interaction. It is shown that as photon entanglement in the stokes mode are directly dependent upon the selective phase values of the field amplitude in both quadrature. It is also found that the degree of occurrence of entanglement directly depends upon the photon number of the Stokes field as well as on the harmonic field. It is shown that for particular phase values, the entanglement of light appear simultaneously. It is found that three -mode states exhibit entanglement properties under certain conditions of squeeze angle. It is also inferred that the generation ideal entanglement state requires infinite Three -mode squeezing. These results may pave the way for obtaining greater noise reduction in optical systems and can be useful in high-quality quantum telecommunication.

Keywords: Entanglement, Hamiltonian interaction, Harmonic mode

**Primary author:** CHOUDHARY, Dr. Binod Kumar (ARKA JAIN UNIVERSITY JHARKHAND)

**Presenter:** CHOUDHARY, Dr. Binod Kumar (ARKA JAIN UNIVERSITY JHARKHAND)

**Track Classification:** Innovation and Technology for Sustainability