



Akira Furusawa

Quantum States of Light

Series: SpringerBriefs in Mathematical Physics

- Uses a wave picture for the visualization of all quantum states of light including a single photon
- Shows that a particle such as a single photon can create a light wave
- Explains nonclassical states of light such as a Schrödinger's cat state

This book explains what quantum states of light look like. Of special interest, a single photon state is explained by using a wave picture, showing that it corresponds to the complementarity of a quantum. Also explained is how light waves are created by photons, again corresponding to the complementarity of a quantum. The author shows how an optical wave is created by superposition of a "vacuum" and a single photon as a typical example. Moreover, squeezed states of light are explained as "longitudinal" waves of light and Schrödinger's cat states as macroscopic superposition states.

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