

NONCLASSICALITY OF QUANTUM STATES  
AND ITS APPLICATION IN QUANTUM  
CRYPTOGRAPHY

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S u m m a r y

The theoretical and experimental progress in the modern methods of quantum optics enables one to provide the deep research in the fundamentals of quantum physics. In the most general sense, the nonclassicality is referred to the special statistical and dynamical properties of quantum states which cannot be explained within the scope of any classical theory. Examples are the Einstein—Podolsky—Rosen paradox, sub-Poissonian statistics of photocounts, quadrature squeezing, *etc.* The review of the current progress in the theory of nonclassical states and the main experimental methods of their investigation is given. An application to the cryptographic key distribution, which is one of the crucial tasks in the problem of confidential communications, is considered.