

Abstract Submitted  
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**Intrinsic optical bistability: the mechanism and features** VICTOR BONDARENKO, Wayne State University — Intrinsic optical bistability (IOB) in two-state quantum systems is investigated theoretically within the framework of density matrix formalism. The analytical relations governing the IOB are presented. The mechanism of the IOB is discovered. The IOB in the realm of time is considered within the framework of phase transitions. It is shown that the IOB in the realm of time represents cyclic process, and, thus, may be applied for description of evolution process. Numerical simulations are performed for two-state quantum dot (QD) systems. The obtained results may find applications for designing and exploiting all-optical components of QD-based optical switches and optical transistors.

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