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Optimal Control Functions of Photon Fock States in a Cavity
BYRON LOWRY, BEREKET BERHANE, SERGEY DRAKUNOV, Embry-Riddle Aeronautical University — The ability to control quantum mechanical states is an essential requirement for many experiments in fundamental quantum mechanics and applications in quantum information systems. Controllability for an atom in a cavity has been shown, and experimental techniques for controlling Fock states in a cavity have been displayed. However, a classical control theoretic treatment of an atom in a cavity has not been developed. From methods in quantum control theory, we develop optimal control functions for an atom in a cavity for different constraints and cost functions.

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