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Continuous Pump Assisted Conditional Synthesis of Nonclassical States in a Dispersive Cavity QED

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Abstract: The interaction of N identical atoms with both a quantized cavity field and an external classical pumping field with the fields being degenerate in frequency, is studied in the regime where the atoms and fields are highly detuned. This dispersive interaction can be used to generate coherent states for the cavity field. By preparing the injected atoms in a superposition of the bare atomic states, various types of Schrödinger-cat-like states may be generated.

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