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Entangled and disentangled evolution for a single atom in a driven cavity JULIO GEA-BANACLOCHE, University of Arkansas, TIMOTHY BURT, PERRY RICE, LUIS OROZCO, University of Maryland — For an atom in an externally driven cavity, we show that special initial states lead to near-disentangled atom-field evolution, and superpositions of these can lead to near maximally-entangled states. Somewhat counterintutively, we find that (moderate) spontaneous emission in this system actually leads to a transient increase in entanglement beyond the steady-state value. We also show that a particular field correlation function could be used, in an experimental setting, to track the time evolution of this entanglement.

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