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Optomechanical cooling in a correlated emission laser WENCHAO GE, M. SUHAIL ZUBAIRY, Institute for Quantum Science and Engineering (IQSE) and Department of Physics and Astronomy, Texas A&M University, College Station, Texas 77843, USA — Optomechanical sideband cooling enables mechanical motion to be cooled close to its quantum ground state. Due to the phase noise of the cooling laser, ground state cooling is limited by using an external driving laser. We study the optomechanical sideband cooling in a correlated emission laser without an external driving. The relative laser phase noise in a correlated emission laser can be greatly suppressed due to the correlation transition. We utilize this effect to avoid the phase-noise limitation on optomechanical cooling.

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