

Abstract Submitted  
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**Correlated photon fluctuations at the onset of first-order optical coherence** PATRICK FOLKES, Army Research Laboratory, Adelphi MD — We report the observation of correlated photon fluctuations over a narrow range of current at threshold of an interband cascade laser using single-detector photon noise measurements. The correlated photon noise is manifested by large fluctuations in the low-frequency photon noise spectral density at certain discrete frequencies which are sensitive to the laser gain characteristics. We observe the concurrent emergence and growth of the lasing mode over the same current range indicating that the correlated photon noise provides evidence of the occurrence of a change in the photon fluctuation statistics and the onset of first-order coherence in the laser emission.

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