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Correlated Photon Noise at Threshold of an Interband Cascade Laser PATRICK FOLKES, Army Research Laboratory — We report the observation of correlated photon fluctuations at threshold of an interband cascade laser at 30 K and 100 K. Away from threshold, the laser exhibits a frequency-independent photon noise spectral density. The correlated photon noise is manifested by large fluctuations in the low-frequency photon noise spectral density at certain frequencies over a narrow range of current near threshold. Concurrently, we observe the emergence and growth of the lasing mode over the same current range. The data indicates that the correlated photon noise is caused by the onset of laser coherence.

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