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Room-Temperature Photon-Number-Resolved Detection Using A Two-Mode Squeezer[1] ELISHA SIDDIQUI MATEKOLE[2], Louisiana State Univ - Baton Rouge, DEEPTI VAIDYANATHAN, Baton Rouge Magnet High School, KENJI WANG ARAI, Reed College, Oregon, RYAN T GLASSER, Department of Physics and Engineering, Tulane university, Louisiana, HWANG LEE, JONATHAN P DOWLING, Louisiana State Univ - Baton Rouge — We study the average intensity-intensity correlations signal at the output of a two-mode squeezing device with $|N\rangle\otimes|\alpha\rangle$ as the two input modes. We show that the input photon-number can be resolved from the average intensity-intensity correlations. In particular, we show jumps in the average intensity-intensity correlations signal as a function of input photon-number N. Therefore, we propose that such a device may be deployed as photon-number-resolving detector at room temperature with high efficiency.

[1]Air Force Office of Scientific Research, the Army Research Office, the Defense Advanced Research Projects Agency, the National Science Foundation, and the Northrop Grumman Corporation.
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