

HIGHER-ORDER SUB-POISSONIAN-LIKE NONCLASSICAL FIELDS

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Criteria defining higher-order sub-Poissonian-like fields are given using five different quantities: I) integrated intensity, II) photon number, III) integrated-intensity fluctuation, IV) photon-number fluctuation, and V) elements of photocount and photon-number distributions. Relations among the moment criteria are revealed. Performance of the criteria is experimentally investigated using a set of potentially sub-Poissonian fields obtained by post-selection from a twin beam. The criteria based on moments of integrated intensity and photon number and those using the elements of photocount distribution are found as the most powerful. States nonclassical up to the fifth order are experimentally reached in the former case, even the ninth-order non-classicality is observed in the latter case.