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Nonclassicality of photon-subtracted squeezing-enhanced coherent state

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***Highlights (for review)**

1.Nonclassicality of the quantum state, which is generated by subtracting any number of photons from the squeezing-enhanced coherent state, is investigated.
2.The normalization factor of this new state is found to be related to the univariate Hermite polynomials.
3. Sub-Poissonian behavior and squeezing-enhanced effect of the PSSECS are observed.
4. The fidelity between the PSSECS and the normal squeezed coherent state is given.