

Natig M. Atakishiyev, Elchin I. Jafarov,
Aynura M. Jafarova, J. Van der Jeugt

THE HUSIMI DISTRIBUTION FUNCTION AND
SUPERPOSITION OF Q -HARMONIC OSCILLATOR
STATIONARY STATES

Abstract

We study a superposition of four stationary states of the q -deformed quantum harmonic oscillator in phase space, through the Husimi quasi-distribution function. This function is analytically computed and it consists of 16 parts, which are explicitly given in terms of q -shifted factorials. Our results are consistent with the known observation that the smoothing of the Wigner quasi-probability distribution through a filter of a size larger than \hbar restricts the appearance of any sub-Planck structures when $q \rightarrow 0$.