Title:	Generalized squeezed states
Authors:	Zelaya, K. (/jspui/browse?type=author&value=Zelaya%2C+K.) Dey, Sanjib (/jspui/browse?type=author&value=Dey%2C+Sanjib) Hussin, V. (/jspui/browse?type=author&value=Hussin%2C+V.)
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Abstract:	Squeezed states are one of the most useful quantum optical models having various applications in different areas, especially in quantum information processing. Generalized squeezed states are even more interesting since, sometimes, they provide additional degrees of freedom in the system. However, they are very difficult to construct and, therefore, people explore such states for individual setting and, thus, a generic analytical expression for generalized squeezed states is yet inadequate in the literature. In this article, we propose a method for the generalization of such states, which can be utilized to construct the squeezed states for any kind of quantum models. Our protocol works accurately for the case of the trigonometric Rosen–Morse potential, which we have considered as an example. Presumably, the scheme should also work for any other quantum mechanical model. In order to verify our results, we have studied the nonclassicality of the given system using several standard mechanisms. Among them, the Wigner function turns out to be the most challenging from the computational point of view. We, thus, also explore a generalization of the Wigner function and indicate how to compute it for a general system like the trigonometric Rosen–Morse potential with a reduced computation time.
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