Generalized Wigner Functions for Damped Systems in Deformation Quantization

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Abstract: Quantization of damped systems usually gives rise to complex spectra and corresponding resonant states, which do not belong to the Hilbert space. Therefore, the standard form of calculating Wigner function (WF) does not work for these systems. In this paper we show that in order to let WF satisfy a *-genvalue equation for the damped systems, one must modify its standard form slightly, and this modification exactly coincides with the results derived from a *-Exponential expansion in deformation quantization.

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