Quantum Physics

On the Fermi Function of Squeezed Coherent States

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(Submitted on 25 Jul 2011)

Fermi observed in 1930 that the state of a quantum system may be defined in two different (but equivalent) ways, namely by its wavefunction Ψ or by a certain function g_F on phase space canonically associated with Ψ. In this Note we study we study Fermi's function when Ψ is a squeezed coherent state. We relate it with the Wigner transform of Ψ, thus generalising a previous observation of Benenti and Strini. We show that the symplectic capacity of the phase space ellipsoid $g_{F}(x,p)\leq0$ is bounded by $h/2$ and $nh/2$ (n the number of degrees of freedom).

Comments:	Research Note
Subjects:	**Quantum Physics (quant-ph)**; Mathematical Physics (math-ph)
MSC classes:	NA
Cite as:	**arXiv:1107.5010 [quant-ph]**
	(or **arXiv:1107.5010v1 [quant-ph]** for this version)

Submission history

From: Maurice de Gosson Dr [view email]
[v1] Mon, 25 Jul 2011 18:06:27 GMT (7kb)

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