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Mathematical Physics

A geometric derivation of the linear Boltzmann equation for a particle interacting with a Gaussian random field

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(Submitted on 5 Jul 2011 (v1), last revised 25 Jun 2012 (this version, v2))

In this article the linear Boltzmann equation is derived for a particle interacting with a Gaussian random field, in the weak coupling limit, with renewal in time of the random field. The initial data can be chosen arbitrarily. The proof is geometric and involves coherent states and semi-classical calculus.

Subjects:	**Mathematical Physics (math-ph)**
Cite as:	**arXiv:1107.0788** [math-ph]
	(or **arXiv:1107.0788v2** [math-ph] for this version)

Submission history

From: Sebastien Breteaux [view email]
[v1] Tue, 5 Jul 2011 06:02:04 GMT (96kb)
[v2] Mon, 25 Jun 2012 09:51:11 GMT (84kb)

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