Search or Article-id

(Help | Advance

All papers

Mathematics > Probability

From a kinetic equation to a diffusion under an anomalous scaling

Giada Basile

(Submitted on 1 Jul 2011 (v1), last revised 16 Oct 2012 (this version, v3))

A linear Boltzmann equation is interpreted as the forward equation for the probability density of a Markov process (K(t), i(t), Y(t)), where (K(t), i(t)) is an autonomous reversible jump process, with waiting times between two jumps with finite expectation value but infinite variance, and Y(t) is an additive functional of K(t). We prove that under an anomalous rescaling Y converges in distribution to a two-dimensional Brownian motion. As a consequence, the appropriately rescaled solution of the Boltzmann equation converges to a diffusion equation.

Subjects: **Probability (math.PR)**

Cite as: **arXiv:1107.0228 [math.PR]**

(or **arXiv:1107.0228v3 [math.PR]** for this version)

Submission history

From: Giada Basile [view email]

[v1] Fri, 1 Jul 2011 14:04:37 GMT (15kb)

[v2] Fri, 13 Jan 2012 13:08:38 GMT (22kb)

[v3] Tue, 16 Oct 2012 13:22:19 GMT (24kb)

Which authors of this paper are endorsers?

Link back to: arXiv, form interface, contact.

Download:

- PDF
- PostScript
- Other formats

Current browse cont

math.PR

< prev | next >

new | recent | 1107

Change to browse b

math

References & Citatio

- NASA ADS

Bookmark(what is this?)

Science WISE