

On statistics of molecular chaos

Yuriy Kuzovlev

(Submitted on 3 Nov 2009)

It is shown that the BBGKY equations for a particle interacting with ideal gas imply exact relations between probability distribution of path of the particle, its derivatives in respect to the gas density and irreducible many-particle correlations of gas atoms with the path. These relations visualize that the correlations of any order always significantly contribute to evolution of the path distribution, so that the exact statistical mechanics theory does not reduce to the classical kinetics even in the low-density (or Boltzmann-Grad) limit.

Comments: 3 pages, no figures, latex epl2, rejected by EPL because one of two reviewers cannot derive Eq.6 from Eq.4 while another thinks that "the hard sphere BBGKY hierarchy is correct in the limit of hard sphere collisions" and "statistical correlations at low density they have little influence" (ha?)

Subjects: **Chaotic Dynamics (nlin.CD)**

Report number: DonPTI-09-YUK-08

Cite as: [arXiv:0911.0651v1](https://arxiv.org/abs/0911.0651v1) [nlin.CD]

Submission history

From: Yuriy Kuzovlev E. [[view email](#)]

[v1] Tue, 3 Nov 2009 19:01:15 GMT (7kb)

[Which authors of this paper are endorsers?](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

nlin.CD

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [0911](#)

Change to browse by:

[nlin](#)

References & Citations

- [CiteBase](#)

Bookmark([what is this?](#))

[CiteULike logo](#)

[Connotea logo](#)

[BibSonomy logo](#)

[Mendeley logo](#)

[Facebook logo](#)

[del.icio.us logo](#)

[Digg logo](#)

[Reddit logo](#)