

**Lions, Pierre-Louis; Perthame, Benoît**

**Lemmes de moments, de moyenne et de dispersion. (Moments, averaging and dispersion lemmas).** (French. Abridged English version) [Zbl 0761.35085](#)

C. R. Acad. Sci., Paris, Sér. I 314, No. 11, 801-806 (1992).

Summary: We prove some new moments lemmas for transport equations from which we deduce a new proof of the averaging lemmas. Thanks to the Wigner transform, we also deduce dispersion lemmas for the Schrödinger equation which unify and sometimes improve the known results on the regularizing effects of order  $1/2$ .

**MSC:**

[35Q35](#) PDEs in connection with fluid mechanics

[82C31](#) Stochastic methods (Fokker-Planck, Langevin, etc.) applied to problems in time-dependent statistical mechanics

[76P05](#) Rarefied gas flows, Boltzmann equation in fluid mechanics

[35Q40](#) PDEs in connection with quantum mechanics

Cited in **2** Reviews

Cited in **20** Documents

**Keywords:**

Vlasov-Poisson equation; transport equations; Schrödinger equation