

PARTICLE DIFFUSION IN EXTERNAL FIELD
OF RANDOM LANGMUIR WAVES:
SHORT AND LONG TIMES

V.I. Zasenko, A.G. Zagorodny, J. Weiland¹

Bogolyubov Institute for Theoretical Physics,
Nat. Acad. Sci. of Ukraine
(14b, Metrolohichna Str., Kyiv 03143, Ukraine),
¹Department of Electromagnetics, Chalmers University
of Technology and Euroatom-VR Association
(41296 Göteborg, Sweden)

S u m m a r y

Temporal behavior of the velocity dispersion of particles undergoing an external field of random Langmuir waves is considered. It is shown that the early stage of evolution of the dispersion may affect its power law asymptotics. The results of simulation are recovered with solutions of the generalized Fokker–Planck equation that was obtained from the microscopic description without averaging over the small field correlation time scale.