

## SUPPRESSION OF OSCILLATIONS BY LÉVY NOISE

*A.I. Olemskoi<sup>1,2</sup>, S.S. Borysov<sup>2</sup>, I.A. Shuda<sup>2</sup>*

<sup>1</sup>Institute of Applied Physics,  
Nat. Acad. of Sci. of Ukraine  
(58, Petropavlivska Str., Sumy 40030, Ukraine;  
e-mails: alex@ufn.ru)

<sup>2</sup>Sumy State University  
(2, R.-Korsakov Str., Sumy 40007, Ukraine)

### S u m m a r y

We find the analytic solution of a pair of stochastic equations with arbitrary forces and multiplicative Lévy noises in a steady-state nonequilibrium case. This solution shows that Lévy flights always suppress a quasiperiodic motion related to the limit cycle. We prove that such suppression is caused by that the Lévy variation  $\Delta L \sim (\Delta t)^{1/\alpha}$  with the exponent  $\alpha < 2$  is always negligible in comparison with the Gaussian variation  $\Delta W \sim (\Delta t)^{1/2}$  in the  $\Delta t \rightarrow 0$  limit.