Erratum: Nonautonomous and nonlinear effects in generalized classical oscillators: A boundedness theorem [Phys. Rev. E 62 R3039 (2000)]

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The present Erratum refers to the paper *Nonautonomous and nonlinear effects in generalized classical oscillators: A boundedness theorem*, by the same authors [1].

The proof of the boundedness theorem in [1] is invalid, because the argument used there to prove the statement (7) cannot be applied, unless the action variable $J(t)$ is a *monotonic* function of time. This is not the case for the problem under consideration.

The correction of the flaw requires a change of strategy in the proof of the theorem. At present, the results obtained by the authors indicate that the conditions for the boundedness are more stringent than those assumed in the original version. The Hamiltonian is now

$$H_{\mathrm{gen}}=\frac{p^2}{2}+A|q|^{2\alpha}+\sum_{n=1}^{M} B_n(t)|q|^{2\beta_n} \quad , \tag{1}$$

and the equation of motion is

$$\ddot{q}+2\alpha A|q|^{2(\alpha-1)}q+\sum_{n=1}^{M} 2\beta_n B_n|q|^{2(\beta_n-1)}q=0 \quad , \tag{2}$$

with $1/2\leqslant\beta_1<\beta_2<\cdots<\beta_M$. The $B_n(t)$'s are bounded non-negative functions, $0\leqslant B_n(t)\leqslant\mu_n$, with bounded first derivative, $|\dot{B}_n(t)|\leqslant\nu_n$. The coefficient $A>0$ is a constant. The preliminary results obtained lead one to assume $\alpha>\max\{\beta_M,1\}$ as a crucial condition for the boundedness. The main difference with respect to the original formulation is that the *autonomous* potential energy $A|q|^{2\alpha}$ is now required to be the *most diverging* term in the coordinate. This is consistent with the theorem proven by Dieckerhoff and Zehnder [2], under different conditions.

The new results will soon appear in a forthcoming paper.

[1] L. Ferrari and C. Degli Esposti Boschi, Phys. Rev. E **62**, R3039 (2000).
[2] R. Dieckerhoff and E. Zehnder, Ann. Sc. Norm. Sup. Pisa, Cl. Sci. **14**, 79 (1987).

