

A nonlocal connection between certain linear and nonlinear ordinary differential equations/oscillators

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Erratum

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The third derivatives in this paper were inadvertently replaced with second derivatives during processing.

The following six equations are corrected:

$$\ddot{U} + c_1 \dot{U} + c_2 U + c_3 U = 0 \quad (35)$$

$$\begin{aligned} \ddot{x} + \left[3(n-1) \frac{\dot{x}}{x} + d_1(t, x) \right] \ddot{x} + (n-1)(n-2) \frac{\dot{x}^3}{x^2} + d_2(t, x) \dot{x}^2 \\ + d_3(t, x) \dot{x} + \frac{\beta^3}{n} x^{3m+1} + d_4(t) x^{2m+1} + d_5(t) x^{m+1} + d_6(t) x = 0 \end{aligned} \quad (36)$$

$$\ddot{x} + 4kx\ddot{x} + 3k\dot{x}^2 + 6k^2x^2\dot{x} + k^3x^4 = 0 \quad (43)$$

$$\ddot{x} + (c_1 + 4kx)\ddot{x} + 3k\dot{x}^2 + 3k(c_1 + 2kx)x\dot{x} + (c_1 + kx)k^2x^3 = 0 \quad (46)$$

$$\ddot{x} + 4kx\ddot{x} + 3k\dot{x}^2 + 6k^2x^2\dot{x} + k^3x^4 + c_3x = 0 \quad (49)$$

$$\ddot{x} + (c_1 + 4kx)\ddot{x} + 3k\dot{x}^2 + (c_2 + 3kc_1 + 6k^2x)x\dot{x} + (c_1 + kx)k^2x^3 + c_2kx^2 + c_3x = 0 \quad (52)$$

In section 3.2 the first line should read ‘In this case, the linear equation (35) becomes $\ddot{U} + c_1 \dot{U} = 0$...’.

In section 3.3 the first sentence should read ‘In this case, the linear ODE (35) assumes the form $\ddot{U} + c_3 U = 0$ and the nonlocal transformation (12) transforms this equation, $\ddot{U} + c_3 U = 0$...’.