Erratum: Chaotic Dynamics of the Fractional Lorenz System [Phys. Rev. Lett. 91, 034101 (2003)]

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We found an error in Eq. (5) of the published Letter (cited above). Instead of $x(t) = x_0 E_\alpha(At^\alpha) + \int_0^t (t-\tau)^{\alpha-1} E_\alpha(A(t-\tau)^\alpha) f(\tau) d\tau$, it should be $x(t) = x_0 E_\alpha(At^\alpha) + \int_0^t (t-\tau)^{\alpha-1} E_{\alpha,\alpha}(A(t-\tau)^\alpha) f(\tau) d\tau$, where $E_{\alpha,\beta}$ is the generalized Mittag-Leffler function in two parameters defined by $E_{\alpha,\beta}(x) = \sum_{k=0}^{\infty} \frac{x^k}{\Gamma(\alpha k+\beta)}$, $(\alpha > 0)$, and $E_\alpha \equiv E_{\alpha,1}(x)$ is the one-parameter Mittag-Leffler function.

Our calculations using the corrected Eq. (5) show that the main results of the Letter (chaotic behavior of the system having dimension less than 3) are still valid; however, some quantities such as critical dimension of the system Σ_{cr} and the largest Lyapunov exponent λ, which were calculated and presented in the Letter, should be replaced by the corrected values $\Sigma_{cr} = 2.82$ and $\lambda \approx 0.88$ instead of $\Sigma_{cr} = 2.91$ and $\lambda \approx 0.85$.

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