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Erkan Nane* (ezn0001@auburn.edu), 221 Parker Hall, Auburn, AL 36849. *Blow-up results for space-time fractional Dynamics.*

Consider non-linear time-fractional stochastic reaction-diffusion equations of the following type,

$$\partial_t^\beta u_t(x) = -\nu(-\Delta)^{\alpha/2}u_t(x) + I_t^{1-\beta}[b(u) + \sigma(u) \dot{F}(t, x)]$$

in $(d + 1)$ dimensions, where $\nu > 0, \beta \in (0, 1), \alpha \in (0, 2]$. The operator ∂_t^β is the Caputo fractional derivative while $-(-\Delta)^{\alpha/2}$ is the generator of an isotropic α -stable Lévy process and $I_t^{1-\beta}$ is the Riesz fractional integral operator. The forcing noise denoted by $\dot{F}(t, x)$ is a Gaussian noise. These equations might be used as a model for materials with random thermal memory. We derive non-existence (blow-up) of global random field solutions under some additional conditions, most notably on b, σ and the initial condition. The results presented are our recent joint work with Sunday Asogwa, Mohammud Foondun, Wei Liu, and Jebessa Mijena. (Received December 10, 2018)