

# Parabolic Anderson model with a fractional Gaussian noise that is rough in time

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## Abstract

This paper concerns the parabolic Anderson equation

$$\frac{\partial u}{\partial t} = \frac{1}{2}\Delta u + u \frac{\partial^{d+1} W^{\mathbf{H}}}{\partial t \partial x_1 \cdots \partial x_d}$$

generated by a  $(d+1)$ -dimensional fractional noise with the Hurst parameter  $\mathbf{H} = (H_0, H_1, \dots, H_d)$  with special interest in the setting that some of  $H_0, \dots, H_d$  are less than half. In a speaker's recent work, the case of the spatial roughness has been investigated. To put the last piece of the puzzle in place, this work investigates the case when  $H_0 < 1/2$  with the concern on solvability, Feynman-Kac's moment formula and intermittency of the system.