1125-60-1057 **Mohammud Foondun** and **Ngartelbaye Guerngar*** (nzg0017@auburn.edu), 221 Parker Hall, Auburn University, Auburn, AL 36849, and **Erkan Nane**. *Large time behavior for the solution of the fractional stochastic heat equation in bounded domains.*

We consider the following fractional stochastic partial differential equation on D an open bounded subset of $\mathbb{R}^d$ for $d \geq 1$

$$\partial_t u_t(x) = -\frac{1}{2}(-\Delta)^{\frac{\alpha}{2}} u_t(x) + \xi\sigma(u_t(x))\dot{W}(t,x) \quad \text{for } \alpha \in (0,2]$$

where the fractional Laplacian is the infinitesimal generator of a symmetric α-stable process in $\mathbb{R}^d$, ξ is a parameter in $\mathbb{R}$, σ is a Lipschitz continuous function and $\dot{W}(t,x)$ is a Gaussian noise white in time and white or coloured in space.

We show that under Dirichlet conditions, in the long run, the p^{th}-moment of the solution grows exponentially fast for large values of ξ. However when ξ is very small we observe eventually an exponential decay of the p^{th}-moment of this same solution. Foondun and Nualart (On the behaviour of stochastic heat equations on bounded domains. ALEA Lat. Am. J. Probab. Math. Stat. 12 (2015), no. 2, 551–571.) established the large time behavior for $\alpha = 2$. We extend their results to the case $\alpha \in (0,2)$. (Received September 14, 2016)