1173-60-145 **Shuhui Liu** (yaozhong@ualberta.ca), School of Mathematics, University of Shandong, Jinan, Shandong , Peoples Rep of China, **Yaozhong Hu*** (yaozhong@ualberta.ca), Department of Mathematical and Statistical Sc, University of Alberta, Edmonton, Alberta T2G 2G1, Canada, and **Xiong Wang** (xiongwang@ualberta.ca), Department of Mathematical and Statistical Sc, University of Alberta, Edmonton, Alberta T2G 2G1, Canada. *Nonlinear stochastic wave driven by rough fractional noise.*

In this talk, I will present a joint work with Shuhui Liu and Xiong Wang on the following one (spatial) dimensional stochastic nonlinear wave equation driven by Gaussian noise which is white in time and fractional in space:

$$\begin{cases} \frac{\partial^2 u(t,x)}{\partial t^2} = \frac{\partial^2 u(t,x)}{\partial x^2} + \sigma(t,x,u(t,x))\dot{W}(t,x), \quad t \in [0,T], \quad x \in \mathbb{R}\,, \\ u(0,x) = u_0(x)\,, \quad \frac{\partial}{\partial t}u(0,x) = v_0(x)\,, \end{cases} \tag{1}$$

where $W(t,x)$ is a centered Gaussian process with covariance given by

$$\mathbb{E}[W(t,x)W(s,y)] = \frac{1}{2}\Big[|x|^{2H} + |y|^{2H} - |x-y|^{2H}\Big](s \wedge t) \tag{2}$$

with $\frac{1}{4} < H < \frac{1}{2}$ and $\dot{W}(t,x) = \frac{\partial^2 W}{\partial t \partial x}$. Assuming $\sigma(t,x,0) = 0$, the existence of the weak solution and the uniqueness of the strong solution are obtained. The existence of the strong solution is a consequence of the Yamada-Watanabe theorem. (Received September 19, 2021)