1136-60-465 **Le Chen*** (le.chen@unlv.edu), Department of Mathematical Sciences, University of Nevada, Las Vegas, Las Vegas, NV 89154-4020, and **Jingyu Huang** (jhuang@math.utah.edu). *Comparison principle for stochastic heat equation on $\mathbb{R}^d$.*

In this talk, I will present a recent joint-work with Jingyu Huang on the strong comparison principle and strict positivity of solutions to the following nonlinear stochastic heat equation on $\mathbb{R}^d$

$$\left(\frac{\partial}{\partial t} - \frac{1}{2}\Delta\right) u(t,x) = \rho(u(t,x))\, \dot{M}(t,x),$$

for measure-valued initial data, where $\dot{M}$ is a spatially homogeneous Gaussian noise that is white in time and ρ is Lipschitz continuous. These results are obtained under the condition that $\int_{\mathbb{R}^d}(1+|\xi|^2)^{\alpha-1}\hat{f}(\mathrm{d}\xi) < \infty$ for some $\alpha \in (0,1]$, where $\hat{f}$ is the spectral measure of the noise. The weak comparison principle and nonnegativity of solutions to the same equation are obtained under Dalang's condition, i.e., $\alpha = 0$. As some intermediate results, we obtain handy upper bounds for $L^p(\Omega)$-moments of $u(t,x)$ for all $p \geq 2$, and also prove that u is a.s. Hölder continuous with order $\alpha - \epsilon$ in space and $\alpha/2 - \epsilon$ in time for any small $\epsilon > 0$. (Received January 21, 2018)