1135-35-1618 **R Mikulevicius** and **Chukiat Phonsom*** (phonsom@usc.edu), 3620 S Vermont Ave KAP104, Los Angeles, CA 90089. *On the Cauchy problem for integro-differential equations in the scale of spaces of generalized smoothness.*

Parabolic integro-differential model Cauchy problem is considered in the scale of L_p -spaces of functions whose regularity is defined by a scalable Lévy measure. Existence and uniqueness of a solution is proved by deriving apriori estimates. Some rough probability density function estimates of the associated Levy process are used as well. Precisely we consider the following equation with $\lambda \geq 0$

$$\begin{aligned} \partial_t u(t,x) &= Lu(t,x) - \lambda u\,(t,x) + f(t,x) + \int_U \Phi\,(t,x,\nu)\, q\,(dt,d\nu)\,, \\ u(0,x) &= g\,(x) \text{ in } E = [0,T] \times \mathbf{R}^d \end{aligned}$$

where an integro-differential operator with Lévy measure π is defined by

$$L\varphi\,(x) = L^{\pi}\varphi\,(x) = \int [\varphi(x+y) - \varphi\,(x) - \chi_{\sigma}\,(y)\, y \cdot \nabla\varphi\,(x)]\, \pi\,(dy)\,, \varphi \in C_0^{\infty}\left(\mathbf{R}^d\right),$$

and $q(dt, d\nu)$ is a compensated point measure. (Received September 23, 2017)