1086-60-289 **Nikolai N. Leonenko**, **Mark M. Meerschaert** and **Alla Sikorskii*** (sikorska@stt.msu.edu), Department of Statistics and Probability, Michigan State University, East Lansing, MI 48824.

Fractional Pearson Diffusion.

Pearson diffusions are governed by diffusion equations with polynomial coefficients. The Pearson diffusion equation governs several useful classes of Markov processes, including the Ornstein-Uhlenbeck process and the Cox-Ingersoll-Ross process, which are useful in finance. Fractional Pearson diffusions are governed by the corresponding time-fractional diffusion equation, where the first time derivative is replaced by a Caputo fractional derivative of order $0 < \alpha < 1$. Explicit strong solutions are developed, using spectral methods. To our knowledge, these are the first explicit solutions of time-fractional diffusions with variable coefficients available in the literature. Stochastic solutions are then obtained, using a non-Markovian time change involving the inverse stable subordinator. The solutions are useful for modeling sub-diffusive phenomena, caused by particle sticking and trapping. (Received August 15, 2012)