Mathematics, Statistics, and Computer Science **@ UIC**

## Statistics and Data Science Seminar

*Time-fractional and L-Kuramoto-Sivashinsky (S)PDEs: two sides of the Brownian-time coin*

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**Abstract:** High order and fractional PDEs have become prominent in theory and in modeling many phenomena. We introduce two large classes of time-fractional and fourth order L-Kuramoto-Sivashinsky (L-KS) Stochastic PDEs. The L-KS PDE/SPDE class is connected to many pattern-formation phenomena. The latter class of time-fractional stochastic equations is related to noisy slow diffusion or diffusion in material with memory. We give comprehensive, sharp, and dimension-dependent Holder and modulus of continuity regularity results for both classes. One important theme of this talk—which is based on a series of our papers—is on the key role Brownian-time processes, their extensions, and their associated kernels play in giving a unifying explicit formulation and in capturing precise behaviors of these two important classes.

Wednesday, October 21 at 4:00 PM in SEO 636