1125-VC-1932   **Peter Jantsch*** (`pjantsch@gmail.com`), 208 Ayres Hall at, 1403 Circle Dr., Knoxville, TN 37996.
Accelerating stochastic collocation methods for PDEs with random coefficients.

Sparse grid stochastic collocation (SC) methods are a valuable tool for solving problems in uncertainty quantification, yet they suffer from a dramatic increase in costs in high-dimensions. In this talk, we apply SC methods to solve partial differential equations (PDEs) with random coefficients, and exploit multilevel and hierarchical structure in the spatial and stochastic approximation schemes to drastically improve the computation efficiency of the method. We provide a thorough analysis of the savings, and present numerical examples of our methods for both linear and non-linear random PDEs. (Received September 19, 2016)