1145-60-2565   **Aziz Issaka*** (`aissaka@uncc.edu`), Department of Mathematics and Statistics, University of North Carolina at Charlotte, 9201 University City Blvd., Charlotte, NC 28223, and **Indranil SenGupta**. *Analysis of variance based financial instruments: swaps and price indices.*

In this presentation, various financial applications of a stochastic model are studied. Firstly, a number of aspects of the variance swap in connection to the Barndorff-Nielsen and Shephard model (BN-S) are studied. A partial integro-differential equation that describes the dynamics of the arbitrage-free price of the variance swap is formulated. Secondly, under appropriate assumptions for the first four cumulants of the driving subordinator, a "Vecer-type theorem" is proved. The bounds of the arbitrage-free variance swap price are also found. Finally, a price-weighted index modulated by market variance is introduced. The large-basket limit dynamics of the price index and the "error term" are derived. Empirical data-driven numerical examples are provided in support of the proposed price index. (Received September 25, 2018)