1165-60-68 **Indranil SenGupta***, Department of Mathematics, North Dakota State University, Department of Mathematics, North Dakota State, Fargo, ND 58108-6050. *A machine/deep learning-based improvement of stochastic models with applications in finance.*

In this presentation, we discuss a particular stochastic process known as the Barndorff-Nielsen and Shephard (BN-S) stochastic process. This is useful for both derivative and commodity markets in financial data analysis. It is well known that such a process suffers from the absence of long-range dependence and many other issues. It will be shown that a generalization of BN-S process is possible with the implementation of various machine/deep learning algorithms. The efficiency and analytical tractability of the refined process will be shown. An application of this refined BN-S process will be presented to find an optimal hedging strategy for an oil commodity. (Received January 05, 2021)