Discovering physics using signal processing  

CHANDRAMOULI NYSHADHAM, GUS L.W. HART, Physics and Astronomy, BYU-Provo — Compressive sensing (CS) is a novel technique developed recently in the field of signal processing. In signal processing, one samples a signal amplitude along the time axis and reconstructs it from the measured samples. In order to recover the measured signal one needs to satisfy the “Shannon-Nyquist theorem” which tells that the sampling rate should be at least twice the maximum frequency present in the signal. CS allows one to recover a sparse signal with a far fewer measurements than required by the Shannon-Nyquist theorem. We can utilize the CS paradigm to “recover” a physical model from just a few measurements or calculations[1]. In this talk, I will present a simple understanding of the concept of compressive sensing and its usage in realizing physical models.