

# **Abstract: Understanding Traders at Nano-second Time Scale, Y4**

Modern markets are big, fast, and complex, and mechanisms at work in them are not necessarily accessible to unaided intuition. Computerized algorithmic and high-frequency trading generates enormous amounts of data, at ever-growing rates. The advent of big data has reshaped not only the methodological challenges and opportunities facing financial economics, but also the very phenomena that the field studies. Understanding the role and behavior of automated trading is at high-stake. In this proposal, we will construct the limit order book for each stock with nanosecond time precision from the NASDAQ ITCH data. The data will be the foundation for analysis of high frequency trading and related policy.