

# Institute of Statistical Science Academia Sinica

## Seminar

**Title : On Frequency-Based Stock Trading**

**Speaker :** Prof. Chung-Han Hsieh ( Department of Quantitative Finance, National Tsing Hua University )

**Time :** 10:30 AM~12:00 PM, Monday, January 3, 2022

**Place :** Auditorium, B1F, Institute of Statistical Science,  
Academia Sinica

※Tea reception starts at 10:10 AM.

※Lecture in English

※Online live streaming through Microsoft Teams will be available.



### Abstract

In this talk, I will discuss a discrete-time portfolio optimization problem that includes the rebalancing frequency as an additional parameter in maximization. The so-called Kelly Criterion is used as the performance metric; i.e., maximizing the expected logarithmic growth of a trader's account, and the portfolio obtained is called the frequency-based Kelly optimal portfolio. The framework enables us to extend upon the existing results to obtain various optimality characterizations on the portfolio. To be more specific, we shall first discuss necessary and sufficient conditions for the frequency-based Kelly optimal portfolio. With the aid of these conditions, I then discuss some new optimality characterizations such as expected ratio optimality and asymptotic log-optimality. Finally, to bridge the theory and practice, a simple trading algorithm using the notion called dominant asset condition to decide when should one trigger a trade. The corresponding trading performance using historical price data is reported as supporting evidence.