# INSTITUTE OF MATHEMATICAL SCIENCES
# UNIVERSITI MALAYA

## SIRI SEMINAR KUMPULAN PENYELIDIKAN

**Title:** Modelling Volatility in Financial Markets using High-frequency Data.
**Speaker:** Prof. Dr. Ng Kok Haur.
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Centre of Research for Statistical Modelling and Methodology, Faculty of Science,
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**Date:** 26 March 2025 (Wednesday).
**Time:** 10 am-11 am.
**Venue:** MM3, Level 2, Institute of Mathematical Sciences, Faculty of Science, Universiti
Malaya.

## ABSTRACT

In this talk, we present two topics on univariate and multivariate volatility modelling using high-frequency data. In the first topic, we introduce an unbiased combined weighted (CW) volatility measure and weighted volatility indicators (WVI) that integrates the return- and range-based volatility measures to model the dynamics volatility of stock returns. Next, we investigate the feasibility of incorporating the CW measure and WVI as the exogenous variable(s) in the generalised autoregressive conditional heteroscedasticity-type models to enhance forecasting performance. In the second topic, we estimate the volatilities of multiple financial assets based on scaled realized Parkinson volatility measures, using both individual series and their pairwise sums of indices. The volatilities are then modelled using the multivariate conditional autoregressive range model. Empirical examples are provided for both topics to demonstrate the applicability of these approaches.

*All are Welcome*