



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

PHD STUDENT SEMINAR

**SOFR Futures Pricing under Affine Term Structure Model
with Scheduled Jumps**

By

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Abstract

Affine term structure models (ATSM) are a class of established models for risk-free rates (RFRs). It is well known that the Secured Overnight Financing Rate (SOFR, the overnight RFR rate index for USD) fluctuates around the Federal fund rate, and the latter is reset routinely by the Federal Open Market Committee (FOMC) and thus follows a jump process. In this talk, we adopt the ATSM with jumps to price 3-month and 1-month SOFR futures and then derive the convexity adjustment formulae between the SOFR futures rates and backward-looking SOFR term rates, and estimation of a three-dimensional Cox-Ingersoll-Ross (CIR) processes with jumps, a subclass of the ATSM with jumps, as a model for the SOFR dynamics. The estimated model is applied to derive the SOFR term rates through the convexity adjustment formulae, and SOFR discount curve is then constructed based on inputs of both SOFR term rates and SOFR swap rates.

Date : 12 May 2025, Monday

Time : 2:00pm

Venue : Room 2612B (Lifts 31-32)

All are Welcome!