

# Hong Kong - Singapore joint Seminar Series in Financial Mathematics/Engineering

## Stochastic algorithms for systemic risk measures and application in insurance

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### Abstract

In this talk, we discuss the numerical aspects of risk measures for large multivariate systems (multivariate risk sources or heterogeneous actors). Systemic risk measures (SRMs) can be interpreted as the minimum amount of liquidity (cash) that secures a system by allocating capital to each institution before aggregating individual risks. We introduce stochastic algorithms of the Robbins-Monro and Polyak-Ruppert type to approximate SRMs, in particular we show that the estimators used are asymptotically normal. We also present numerical tests to measure the performance of these algorithms (through several examples). This presentation is based on a work in progress with Sarah Kaakai & Achraf Tamtalini (Le Mans University).

### About the speaker

Anis Matoussi is full professor at Le Mans University. He is expert in the BSDE and SPDE theory, and also in mathematical finance. He is actually director of Risk and Insurance Institute of Le Mans, and PI of the Chair "Risques Emergents ou Atypiques en Assurance (RE2A)" at Risk Fondation of Institut Louis Bachelier.

### Date

26 May 2022(Thursday)  
(HK Time)

### Time

4:00pm – 5:00pm (HK  
Time)

### Zoom

<https://cityu.zoom.us/j/97417729842?pwd=VW9ScEV2Y0Qzd2RPRXBWTERkaGNhQT09>

### Meeting ID:

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### Passcode:

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