

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

## A prelude to blockchain technology: design and economy

**Prof. Wenpin Tang**  
**Columbia University**

### Abstract

A blockchain is a distributed network which functions as a digit ledger and a smart contract allowing the secure transfer of assets without an intermediary. Bitcoin, a P2P electronic cash system, is the first manifestation of the blockchain technology. As the internet is a technology to facilitate the digit flow of information, the blockchain is a technology to facilitate the digital exchange of value. Due to its distributed and secure nature, blockchain technology is believed to be the next generation digital exchange platform with wide applications such as cryptocurrency, healthbank...etc. While the blockchain technology is conceptually powerful, it suffers from two major problems: scalability and security. In this talk, I will first give a "crash course" on the blockchain protocols, e.g. PoW (Proof of Work) and PoS (Proof of Stake). I will then focus on the PoS model, and show how this design may entail different types of risks. I will also discuss a few challenges and research directions in the blockchain designs which are worth further developments. The work is based on joint work with David D. Yao.

### About the speaker

Prof. Wenpin Tang is an assistant professor at Columbia IEOR. He graduated from Department of Statistics, UC Berkeley. His current interest lies on applied probability, machine learning and their applications to FinTech.

### Date

Nov 17, 2022 (Thursday)  
(HK Time)

### Time

10:00 – 11:00  
(HK Time)

### Zoom

<https://hkust.zoom.us/j/94387210139?pwd=UG96SEZOaUd1YllvS1JUSVNRZGJQZz09>

Meeting ID:  
943 8721 0139  
Passcode:  
3485