Don't Underestimate Exponential Growth!

(E2MAT001T)

Introduction	A famous legend goes like this: A wise man presented a king with a beautiful handmade chessboard as a gift. The king was delighted with the gift and asked the man what he would like in return. The man answered that he would like one grain of rice on the first square of the chessboard, two grains of rice on the second square of the chessboard, four grains of rice on the third square, eight grains on the fourth square and so on. The king was surprised at such a seemingly meagre request and readily agreed. What do you think happened next? In this talk, we will discuss how the "meagre request" was anything but meagre! A chessboard has 64 squares, if the man's request was fulfilled, the last square would contain 2^{64} grains of rice. This number has 20 digits - it's more than the number of grains of rice on earth! This is an example of exponential growth and the legend demonstrates how people tend to underestimate the speed of exponential growth. In this talk, we will discuss what is exponential growth and give some real-life examples where it can be seen. We will then see how underestimating exponential growth can have serious consequences - particularly during a pandemic. The speaker, Dr Jonathan TSAI, obtained his PhD from the University of Cambridge. He does research at the frontier of mathematics in the University of Hong Kong; at the same time, he teaches maths to students at secondary school level. His educational goal is to give students a glimpse of advanced mathematics; to increase their appreciation of maths; and to inspire them to pursue maths-related subjects in the future.
Programme Type	Mathematics Talk (Level II) ([NON Token-required](#))
Speaker	**Dr Jonathan Tsai**
Target Participants	➢ S1 – S3 HKAGE student members ➢ Class size: ~~40~~ 100 * First-come, first-served
Language	English
Application Deadline	**21 December 2020, 12:00 n.n.**

Schedule		
	Date	~~5 December 2020 (Saturday)~~ 24 December 2020 (Thursday)
	Time	10:00 a.m. - 12:00 n.n. (Please join the Zoom meeting at 9:45 a.m. for registration)
	Venue	Zoom Meeting (Details will be sent to applicants on 22 December 2020)
Enquiries		For enquiries, please contact Academic Programme Development Division on 3940 0101 after language selection, press "1".