Multi-scale mathematical models of the COVID-19 pandemic

Yanni Xiao
School of Mathematics and Statistics, Xi'an Jiaotong University
yxiao@mail.xjtu.edu.cn

Abstract: The global outbreak of COVID-19 has caused worrying concern amongst the public and health authorities. Modeling of this novel coronavirus also presents us a great challenge. In this talk I initially summarize what we have done on the prediction of COVID-19 pandemic and effect of massive movement on the possible outbreak [1,2]. I then present our recent work on COVID-19 infection, including a multi-scale models describing the multiple outbreaks and a stochastic individual based model on complex networks with four layers. We would like to investigate how behavior changes, vaccination and relaxation of non-NPIs affect the development of COVID-19 infections. Finally I shall give some considerations and thoughts on modelling COVID-19 infections and concluding remarks. This is joint work with Prof Tang Sanyi and Prof Wu Jianhong and their groups.

Reference