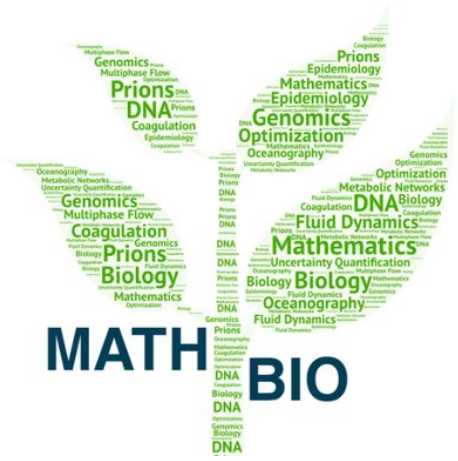
Mathematical Biology Seminar
Wednesday, February 9, 2022
Speaker: Dr. Ling Xue,
Professor, Harbin Engineering University

Title: Evaluating strategies for tuberculosis to achieve the goals of WHO in China

Time: 4pm
Zoom Link:
https://ucmerced.zoom.us/j/98050375649
Passcode: 172069

Abstract: Although great progress has been made in the prevention and mitigation of TB in the past 20 years, China is still the third largest contributor to the global burden of new TB cases, accounting for 833,000 new cases in 2019. Improved mitigation strategies, such as vaccines, diagnostics, and treatment, are needed to meet goals of WHO. Given the huge variability in the prevalence of TB across age groups in China, the vaccination, diagnostic techniques and treatment for different age groups may have different effects. Moreover, the data of TB cases show significant seasonal fluctuations in China. In this talk, I present a non-autonomous differential equation model with age structure and seasonal transmission rate. Our results show that vaccinating susceptible individuals whose ages are over 65 and between 20 and 24 is much more effective in reducing prevalence of TB. Although the improved strategies will significantly reduce the incidence rate of TB, it is challenging to achieve the goal of WHO by 2050.



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