

Chilean Probability Seminar

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Título: SIR model with social gatherings.

Abstract: The classic susceptible-infected-recovered (SIR) model, introduced by Kermack and McKendrick in 1927, is a simple system of ODEs governing the spread of an infectious disease in a large population. It is based on the assumption that the disease is transmitted via pairwise interactions between infected and susceptible individuals. In this talk, we propose an extension to this model, whose underlying infection mechanism consists of individuals attending randomly generated social gatherings, leading to potentially many new infections. This gives rise to an explicit system of ODEs, wherein the force of infection term depends non-linearly on the proportion of infected individuals. Some specific instances yield models previously studied in the literature, to which our work provides a probabilistic foundation. We rigorously justify our model by showing that the system of ODEs is the mean-field limit of the jump Markov process corresponding to the evolution of the disease in a finite population.

El enlace para conectarse al seminario es:

Unirse a la reunión Zoom

<https://reuna.zoom.us/j/84521834914?pwd=OTZ6Y0NWM3pYTGtTbEt3c0luTG96UT09>

Modalidad híbrida en la sala Multimedia del CMM y por Zoom.
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