

CMM Covid-19 Seminar

Speaker: Roberto Cortez, Facultad de Ciencias Exactas. Universidad Andrés Bello.

Title: SIR model with social gatherings.

Abstract: We introduce an extension to Kermack and McKendrick's classic susceptible-infected-recovered (SIR) model in epidemiology, whose underlying mechanism of infection consists of individuals attending randomly generated social gatherings. This gives rise to a system of ODEs where the force of infection term depends non-linearly on the proportion of infected individuals. Some specific instances yield models already studied in the literature, to which the present work provides a probabilistic foundation. The basic reproduction number is seen to depend quadratically on the average size of the gatherings, which may be helpful to understand how restrictions on social gatherings affect the spread of the disease. 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:

<https://uchile.zoom.us/j/96394337590?pwd=SBTTDg3NURIR3IzeHJlejBCSUxaQT09>

ID de reunión: 963 9433 7590

Código de acceso: 878444

Wednesday, May 18, 14:30 hrs (Chilean time).

