

PHYSICAL MATHEMATICS SEMINAR

Dynamics and Control of Acute Immunizing Infections

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ABSTRACT:

As well as their public health impact, acute immunizing infections such as measles and influenza provide a particularly clear example of nonlinear population dynamics. Here, we outline recent work on measles, where rich and diverse nonlinear dynamics arising from strong immunity following infection are the key dynamical features. We then contrast measles dynamics and control with those of seasonal influenza, where evolutionary 'escape' from immunity complicates both epidemic patterns and optimal vaccination strategies. Finally, we use epidemic model inference to explore how a major emerging infection in SE Asia, Hand, Foot and Mouth Disease, fits into the dynamic spectrum (and resulting options for control) defined by measles and influenza.

TUESDAY, November 6, 2012

2:30 PM

Building 4, Room 145

*Reception at 3:30 PM in Building 2, Room 290
(Math Dept. Common Room)*

<http://math.mit.edu/pms>



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