



**The Hong Kong Polytechnic University
Department of Applied Mathematics**

Seminar

On

Global stability analysis of a delayed SIS epidemic model

by

**Dr. Xiang Sheng Wang
Southeast Missouri State University, USA**

Abstract

We study an SIS (Susceptible-Infected-Susceptible) model with distributed delays. By constructing suitable Lyapunov functionals, we demonstrate that the global dynamics of this model is fully determined by the basic reproductive ratio. To be specific, we prove that if this ratio is less than one, then the disease-free equilibrium is globally asymptotically stable. On the other hand, if the ratio is greater than one, then the endemic equilibrium is globally asymptotically stable. It is remarkable that the model dynamics is independent of the probability of immunity loss.

Date : 30 Jul, 2014 (Wednesday)

Time : 5:00-6:00 p.m.

Venue : TU717, The Hong Kong Polytechnic University

*** * * ALL ARE WELCOME * * ***