



DEPARTMENT OF MATHEMATICS

SEMINAR

Speaker: Dr. Weijiu Liu
UCA Department of Mathematics

Title: A Minimal Mathematical Model for Robust Blood Glucose Tracking

Date: Wednesday, September 6, 2017

Time: 2:00 p.m.

Place: MCS Room 220

ABSTRACT: This presentation is accessible to any students who have a strong background in ordinary differential equations and linear algebra. We will look at the problem of the robust blood glucose tracking. In our problem, parameter uncertainties are introduced into a minimal mathematical model of the blood glucose regulation system. The exogenous glucose disturbance from food may vary in time, and the desired glucose reference to be tracked can be also time-dependent. Using the well-developed feedback control theory, we design robust feedback controllers such that the glucose concentration subject to the exogenous time-varying glucose disturbance asymptotically tracks the time-varying glucose reference exactly. Numerical simulations are conducted to further confirm our theoretical results.

Refreshments will be served.