



DEPARTMENT OF MATHEMATICS AND STATISTICS

CANDIDATE'S TALK

Speaker: Dr. Ioannis Sgouralis, University of Tennessee -
Knoxville

Title: Mathematical Modeling in Renal Physiology

Date: Wednesday, March , 2016

Room/Time: 10:00 a.m. Room 224 MM

ABSTRACT:

The kidneys play a dominant role in regulating the body's internal environment. As part of the excretory system, kidneys remove metabolic waste products, maintain the body water and salt content at appropriate levels, and control blood volume and blood pressure. Kidney dysfunction is often associated with severe health conditions such as diabetes and hypertension. For the proper operation of the kidneys, their functional units, the nephrons, need to be supplied with a tightly controlled blood flow, that needs to remain stable despite fluctuations of blood pressure. Over the last years a number of modeling studies has been dedicated to the analysis of the mechanisms that provide such tight control. In this talk, I will present an overview the most recent models of renal blood flow control with an emphasis on models that simulate responses to transient pressure perturbations.

ABOUT THE SPEAKER:

Ioannis Sgouralis is a Postdoctoral Fellow in the National Institute for Mathematical and Biological Synthesis at the University of Tennessee, Knoxville. He graduated with a Diploma in Applied Mathematics from the National Technical University of Athens, Greece in 2009. He received his PhD from Duke University in 2014. His research interests are in Applied Mathematics, mainly in modeling and analyzing physiological systems.