TEMPLE UNIVERSITY

Department of Mathematics

Analysis Seminar

Room 617 Wachman Hall

Monday, November 2, 2015, 2:40 p.m.

Fluid limits and queueing policies

by Christian Gromoll

Department of Mathematics
University of Virginia

Abstract: There are many different queueing policies discussed in the literature. They tend to be defined in model-specific ways that differ in format from one policy to another, each format suitable for the task at hand (e.g. steady-state derivation, scaling-limit theorem, or proof of some other property). The ad-hoc nature of the policy definition often limits the scope of potentially quite general arguments. Moreover, because policies are defined variously, it's difficult to approach classification questions for which the answer presumably spans many policies.

In this talk I'll propose a definition of a general queueing policy and discuss exactly what I mean by "general". The setup makes it possible to frame questions about queues in terms of an arbitrary policy and, potentially, to classify policies according to the answer. In this vein, I'll discuss a few results and some ongoing work on proving fluid limit theorems for general policies.