Match making in a Kidney Paired Donation Program

Thursday, October 6, 2016 | 4 p.m.
STC 0040, University of Waterloo
Reception will follow in the M3 Bruce White Atrium

I was David Sprott’s first PhD student and I owe much to him. It is therefore a great pleasure to participate in this lecture series in his honour.

A kidney-paired donation program (KPDP) consists of transplant candidates and their incompatible donors, along with non-directed donors (NDDs), who are willing to donate a kidney to the program. The aim of the KPDP is to arrange matches of donors and candidates in order to overcome incompatibilities. A virtual crossmatch based on blood types of a candidate and donor as well as donor HLA antigens and candidate sensitivities can be used to identify potential transplants. Unfortunately, however, an identified potential transplant often cannot proceed (is not viable) because of illness or schedule conflicts or because an incompatibility is identified on a definitive laboratory crossmatch. A given KPDP can be represented as a directed graph with edges indicating a potential transplant, and transplants can be carried out based on disjoint cycles of pairs and chains created from NDDs. A problem of substantial importance is how to select potential transplants for consideration in order to optimize the number of transplants achieved and I will discuss and compare various approaches to this. Our approach takes account of probabilities that potential transplants are viable and seeks selections that keep many options that can be implemented depending on viability.