

RYERSON UNIVERSITY
DEPARTMENT OF MATHEMATICS
GRAPHS AT RYERSON (G@R) SEMINAR

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Date: Thursday, September 22, 2016

Time: 10am

Location: ENG 210

Avoidance coupling of simple random walks

Abstract: Suppose we have a simple, connected graph and two tokens performing some kind of a random walk on that graph, with alternating steps. Can we set them up with a common Markovian algorithm in such a way that they never collide but if we only see one (either) token, we can't tell it's not doing a simple random walk?

In the spirit of last week's seminar, I will focus on a version of this question that translates into a condition on perfect matchings. A non-complete regular graph admits this kind of a process if for any two non-adjacent vertices x and y , and their neighborhoods $N(x)$ and $N(y)$ there exists a perfect matching between $N(x)$ and $N(y)$ in the complement graph. I've been able to prove this for all but very dense strongly regular graphs. Perhaps you can help me extend this result, or prove a weaker condition that is still sufficient for an SRG to admit an avoidance coupling of simple random walks.

ALL FACULTY, STAFF, STUDENTS AND GUESTS ARE WELCOME TO ATTEND