



# DEPARTMENT OF MATHEMATICAL SCIENCES

## Discrete Mathematics Seminar Series

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### **Quantum state transfer on graphs - using magnetic fields**

**ABSTRACT:** Transmitting quantum information losslessly through a network of particles is an important problem in quantum computing. Mathematically this amounts to studying solutions of the discrete Schrödinger equation  $d/dt \phi = i H \phi$ , where  $H$  is typically the adjacency or Laplace matrix of the graph. This in turn leads to questions about subtle number-theoretic behavior of the eigenvalues of  $H$ .

It has proven to be difficult to find graphs which support such information transfer. I will talk about recent progress in understanding what happens when one is allowed to apply magnetic fields (that is, adding a diagonal matrix to  $H$ ) to the system of particles.

**Wednesday, January 23, 2019**

**11:00AM-11:50AM**

**Stratton Hall 203**