

The University of Oregon's  
Department of Mathematics  
Presents the

## 2010 Niven Lectures

May 26<sup>th</sup> and 28<sup>th</sup>

# Alexei Borodin

*from the California Institute of Technology*

*A tea will precede both lectures in 219 Fenton Hall at 3:15*

*subsequences*

**Lecture 1: Around Longest Increasing Subsequences**

**4:00 p.m., 166 Lawrence Hall, May 26<sup>th</sup> (Undergraduate Lecture)**

How long is the longest increasing subsequence of a randomly picked permutation of  $\{1, \dots, n\}$ ?

It took mathematicians four decades to completely answer this question. We will explain the answer and outline its deep connections with various domains of mathematics and physics. No preliminary knowledge will be assumed.

**Lecture 2: Interlacing Particle Systems**

**4:00 p.m., 208 Dady Hall, May 28<sup>th</sup> (~~Undergraduate Lecture~~)**

Interlacing particles arise naturally when one examines eigenvalues of submatrices of a given Hermitian matrix, or decomposes an irreducible representation of a simple Lie group with respect to the action of its subgroups, or considers dimer covers on the hexagonal lattice. Close relationships between these structures become apparent when one adds randomness. The goal of the talk is to survey recent progress in the analysis of large random interlacing structures.