

**Submittee:** Ed Perkins  
**Date Submitted:** 2014-07-25 09:42  
**Title:** PIMS Summer School in Probability  
**Event Type:** Summer-School

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**Location:**  
PIMS-UBC

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**Dates:**  
June 2-27, 2014.

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**Topic:**  
1. Influences and noise stability in product space. (Elchanan Mossel, lecturer) //  
2. Random Walks and random fractals. (Asaf Nachmias, lecturer) //

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**Methodology:**  
Over 85 registrants attended two 4-week courses by Elchanan Mossel and Asaf Nachmias described below. // Each lecturer gave a 90 minute lecture on MTThF. //  
The courses were supplemented by weekly tutorials. //  
In addition there were 3 mini-courses given by Alison Etheridge, Alan Sly and Ofer Zeitouni given in the afternoons. // Each speaker gave three one-hour lectures. // There were also 25 contributed lectures given by the participants in the afternoon. // Wednesdays were free but many participants went on organized outings for hikes and sight-seeing. // These outings were an integral part of the school as students, lecturers, postdocs and faculty get to know each other and discuss the courses and their own research. //

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**Organizers:**  
Angel, Omer, Mathematics, UBC //  
Barlow, Martin, Mathematics, UBC //  
Brydges, David, Mathematics, UBC //  
Nachmias, Asaf, Mathematics, UBC //  
Perkins, Ed, Mathematics, UBC //

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**Speakers:**  
1. Elchanan, Mossel, Departments of Computer Science and Mathematics, U. California, Berkeley, Influences and noise stability in product space. //

Abstract. Functions of independent random variables are of major interest in probability, statistics, functional analysis and theoretical computer science. // In this course we will explore probabilistic and analytic tools for studying such functions with focus on notions of influences (the effect of re-sampling individual variables on the function) and stability (with respect to correlated sampling of

all the variables). // We will explore connections to isoperimetric problems as well as examples concerning random walks, voting, testing and percolation. //

2. Asaf Nachmias, Department of Mathematics, UBC, Random Walks and random fractals. // Abstract. We will explore the geometry and random walk behavior on two popular random fractals: critical percolation clusters and random planar maps. In particular, our goal will be to prove that the spectral dimension of critical percolation in high dimensions is  $4/3$  and that the random walk on the uniform infinite planar triangulation (UIPT) is recurrent. // We will study from scratch most of the different probabilistic and geometric tools required to prove these results such as electric networks, critical exponents, extremal length and Koebe's circle packing theorem. //

3. Alison Etheridge, Professor of Statistics, Oxford University, Stochastic models of evolution. //

4. Alan Sly, Department of Statistics, U. California Berkeley, Phase transitions for random constraint satisfaction. //

5. Ofer Zeitouni, Department of Mathematics, Weizmann Institute, Log correlated Gaussian fields and branching random walks. //

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**Links:**

<https://www.math.ubc.ca/Links/ssprob14/index.php>

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