Northeastern University

College of Computer and Information Science (CCIS)
and Network Science Institute
invite you to join us for a series of lectures by

CRIS MOORE
Professor, Santa Fe Institute
Visiting Professor, Northeastern University
http://tuvalu.santafe.edu/~moore/

Every Thursday, 3:30-5:00 PM
From October 22 to November 12
177 Huntington Avenue, Floor 11, Boston, MA 02115

Refreshments will be served prior to the lectures

Since we are located in a secure building, we would appreciate an RSVP to i.yenidedekozcaz@neu.edu .

Please have your Northeastern ID ready (or other picture ID, if not Northeastern).

COMPUTATION, PHASE TRANSITIONS, and NETWORKS

October 22, 3:30-5:00 PM
Lecture I: Computational complexity and landscapes ● Two puzzles: Euler vs. Hamilton ● P vs. NP and NP-completeness: building computers ● When greed works: Minimum Spanning Tree and Max Flow ● Bumpy energy landscapes and local optima

October 29, 3:30-5:00 PM
Lecture II: Phase transitions in random graphs ● The emergence and size of the giant component ● Branching processes and differential equations ● Power laws at criticality ● The k-core and discontinuous transitions

November 5, 3:30-5:00 PM
Lecture III: Phase transitions in random k-SAT ● Early history and phenomenology ● First and second moment bounds ● Algorithms, clustering, and frozen variables ● Why we believe in a regime where solutions exist but are hard to find

November 12, 3:30-5:00 PM
Lecture IV: Community detection in networks ● The stochastic block model ● The analogy between statistical physics and statistical inference ● Belief propagation and variational methods ● The detectability transition ● (If there's time) Spectral clustering