Algebra Seminar

Hodge Theory on Matroids

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Abstract: The chromatic polynomial of a graph counts its proper colourings. This polynomial's coefficients were conjectured to form a unimodal sequence by Read in 1968. This conjecture was extended by Rota in his 1970 address to assert the log-concavity of the characteristic polynomial of matroids which are the common generalizations of graphs and linear subspaces. We discuss the resolution of this conjecture which is joint work with Karim Adiprasito and June Huh. The solution draws on ideas from the theory of algebraic varieties, specifically Hodge theory, showing how a question about graph theory leads to a solution involving Grothendieck's standard conjectures.

Tuesday, February 16, 2016, 4:00 pm
Mathematics and Science Center: W304

Mathematics and Computer Science
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