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Loop-erased random walk and Fomin's identity

In this talk, I will outline the recent proof of a 2001 conjecture of S. Fomin concerning a relationship between crossing probabilities of two-dimensional loop-erased random walk and planar Brownian motion. This conjecture was proved by establishing estimates of random walk exit probabilities in simply connected domains. These estimates can also be used to give a quick derivation of a crossing exponent for loop-erased random walk first proved by R. Kenyon in 2000.

This talk is based on joint work with Greg Lawler.