

Invariants of links and graphs

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(Tea 3:30 pm Math Lounge)

Abstract

I am going to discuss the following well known relation between knot theory and graph theory. The Jones polynomial of an alternating link is equal (up to a sign and a power of the variable) to the Tutte polynomial of the planar graph corresponding to a diagram of the link. We generalize this result to ribbon graphs (not necessarily planar) and links in certain 3-manifolds. We use the Bollobas-Riordan polynomial of ribbon graphs instead of the Tutte polynomial, and the Kauffman bracket as a version of the Jones polynomial. This is a joint work with Igor Pak (MIT).