THE BIPARTITION POLYNOMIAL, THE ISING MODEL AND THE MATCHING POLYNOMIAL

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In this talk we present a new graph polynomial, called the bipartition polynomial, which is a generalization of the domination polynomial introduced by Arocha and Lliano [1]. Due to the fact that the bipartition polynomial is closely connected to the domination polynomial, the calculation is in the general case NP-hard. But it can be easily calculated in some special graph classes like complete graphs, stars and bipartite graphs. It also has some nice properties and interpretations of the coefficients. The main part of the talk will be dedicated to the connection to some other graph polynomials like the matching polynomial, the independence polynomial and the Ising model.

Keywords: Domination, matching polynomial, graph polynomials.

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References


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