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A Combinatorial Rogers-Ramanujan Proof

Abstract for the Combinatorics Seminar 2005 November 1

The Rogers-Ramanujan identities appear in many areas of mathematics, such as combinatorics, number theory, group theory, statistical physics, probability, and complex analysis. However, no very simple proof of them is known.

I will explain a way to prove generalizations of the Rogers-Ramanujan identities combinatorially by using two new bijections on partitions of an integer. These bijections are related to Dyson's notion of rank of a partition.

I will not assume any knowledge of the theory of integer partitions.

To the Combinatorics Seminar