

Deranged Matchings

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The number of derangements of an n -element set can be realized as the number of perfect matchings in a complete bipartite graph $K_{n,n}$ with a perfect matching removed. For large n , this value is approximately $n!/e$. A related problem is the number of perfect matchings in the complete graph K_{2n} with a perfect matching removed. For large n , this value is approximately $(2n - 1)!!/\sqrt{e}$. In this talk we discuss a common generalization of these parameters by investigating the number of perfect matchings in certain k -partite graphs.