
Elliptic rook and file numbers

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Abstract

In this work, we construct elliptic analogues of the rook numbers and file numbers by attaching elliptic weights to the cells in a board. We show that our elliptic rook and file numbers satisfy elliptic extensions of corresponding factorization theorems which in the classical case were established by Goldman, Joichi and White and by Garsia and Remmel in the file number case. This factorization theorem can be used to define elliptic analogues of various kinds of Stirling numbers of the first and second kind as well as Abel numbers. We also give analogous results for matchings of graphs, elliptically extending the result of Haglund and Remmel.

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