Exact results for the Potts model partition function in lattice strips of arbitrary length SEBASTIAN REYES, Pontificia Universidad Catolica de Chile, Santiago, Chile, PEDRO ALVAREZ, FABRIZIO CANFORA, Centro de Estudios Cientificos, Valdivia, Chile, SIMON RIQUELME, Pontificia Universidad Catolica de Chile, Santiago, Chile — The Potts model is of fundamental importance in the study of critical phenomena, especially in two dimensions (2D). Although some relevant quantities such as the critical exponents are known for the ferromagnetic 2D Potts model, the exact partition function in the thermodynamic limit has not been obtained for any lattice in dimensions d>1. It is therefore interesting to solve the simpler problem of calculating exactly the partition function for strips of finite width. One way to calculate such function is through the transfer matrix method. We present here a novel approach to obtain the transfer matrices, and show that the procedure has the advantage of being directly applicable to virtually any kind of recursive lattice. We discuss then some new exact results for strips of the kagomé and diced lattices.

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