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Factorization of density matrices in the critical RSOS models

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We study reduced density matrices of the integrable critical RSOS model in a particular topological sector containing the ground state. Similar as in the spin-1/2 Heisenberg model correlation functions of this model on short segments can be ‘factorized’: they are completely determined by a single nearest-neighbour two-point function ω capturing the dependence on the system size and the state of the system and a set of structure functions. The latter can be expressed in terms of the possible operators on the segment, in the present case representations of the Temperley-Lieb algebra TL_n , and are independent of the model parameters. We present explicit results for the function ω in the infinite system ground state of the model and compute multi-point local height probabilities for up to four adjacent sites for the RSOS model and the related three-point correlation functions of non-Abelian $su(2)_k$ anyons.

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