RAZUMOV-STROGANOV TYPE CORREPONDENCES

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It is well know that the configurations of the $6-$vertex model on a square grid with Domain Wall boundary conditions are in bijections with Alternating Sign Matrices and with Fully-Packed Loop (FPL) configurations on the square with alternating boundary conditions.

In 2001 Razumov and Stroganov conjectured that the enumerations of FPL configurations on the square refined according to the link pattern for the boundary points coincide with the (properly normalized) components of the ground state of the dense O(1) loop model on a semi-infinite cylinder. In [1] we have provided a proof of the Razumov Stroganov conjecture. Recently [2] we have found and proven a generalization of this result by identifying certain weighted enumerations of FPLs with the components of the ground state of an inhomogeneous version of the O(1) loop model.

Keywords: 6-vertex model, integrability, combinatorics

[1] J. Comb. Theory A 118 (2011) 1549-1574

[2] arXiv:1202.5253