L-Tromino Tilings for Portions of Square Lattice

Jumadildayev, Sagyn (School: Nazarbayev Intellectual School of Physics and Math)

Domino tiling problem for (m, n)-grid was solved by Kasteleyn, Temperley and Fisher in 1961. L-tromino is a 2x2 rectangle without one cell. We consider the L-tromino tilings problem for (m,n)- grid when mn is not divisible by 3. We show that the alternative sums of the first row of the L-tromino tilings matrix vanish if mn = 2(mod 3), and similar relation holds for the second row of the L-tromino tiling matrix if mn = 1(mod 3). As an application of this result, we obtain that the number of L-tromino tilings for (m, 7)-grid without (2, 4)-cell is two times more than the similar number for (m, 7)-grid without (2, 3)-cell.

Awards Won:
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