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Pavel Bleher, Brad Elwood and Dražen Petrović* (drpetrov@iupui.edu). *Pfaffian Sign Theorem for the Dimer Model on a Triangular Lattice.*

We prove the Pfaffian Sign Theorem for the dimer model on a triangular lattice embedded in the torus. More specifically, we prove that the Pfaffian of the Kasteleyn periodic-periodic matrix is negative, while the Pfaffians of the Kasteleyn periodic-antiperiodic, antiperiodic-periodic, and antiperiodic-antiperiodic matrices are all positive. The proof is based on the Kasteleyn identities and on small weight expansions. As an application, we obtain an asymptotics of the dimer model partition function with an exponentially small error term. (Received September 25, 2017)