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Two-dimensional Potts model with aperiodic interactions: numerical simulation[1] NILTON BRANCO, DANIEL GIRARDI, Universidade Federal de Santa Catarina, Departamento de Fisica — The uniform two-dimensional Potts model presents first-order transitions for q (number of states) greater than 4. The introduction of aperiodic modulations on its interactions may change the universality class or the nature of the transition. Previous results for the $q = 8$ Potts model on the square lattice suggest that the Harris-Luck criterion is satisfied also for first-order transitions [1]. However, for random disorder, the new universality class that may emerge depends on the number of states of the Potts model [2]. In order to test this possibility for aperiodic modulations, we have made extensive numerical simulations on the $q = 6$ Potts model on the square lattice, for three aperiodic sequence. Our results show that the Harris-Luck criterion is obeyed and that the new universality class that may emerge is the same as for the $q = 8$ Potts model. Therefore, we stablish that, contrarily to random disorder, the introduction of relevant aperiodic modulation leads the system to a new universality class, irrespective number of states of the Potts model.

[1] C. Chatelain, B. Berche, Phys. Rev. Lett. **80**, 1670 (1998).
[2] J.L. Jacobsen and J. Cardy, Phys. Rev. Lett. **79**, 4063 (1997).

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