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**Rounding of the first-order phase transition in the four-color Ashkin-Teller model** AHMED IBRAHIM, THOMAS VOJTA, Missouri Univ of Sci Tech — The two-dimensional four-color Ashkin-Teller model is investigated by Monte Carlo simulations to analyze the effects of quenched disorder on the first-order phase transition. We show that the quenched disorder destroys the first-order phase transition and turns into a continuous one. We study the emerging critical behavior of the disordered Ashkin-Teller model by using a finite-size-scaling analysis and confirm it to be in the clean two-dimensional Ising universality class with universal logarithmic corrections. This concurs with perturbative renormalization-group predictions by Cardy. We discuss the universality of the arising critical behavior and we compare with earlier results in the literature.

Ahmed Ibrahim  
Missouri Univ of Sci  
Tech

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