

Roelofs, Bartelt, and Einstein Respond: Schick's Comment¹ provides a quite plausible explanation of the Ising nature of the order-disorder transition of $p(2 \times 2)$ O/Ni(111). An alternative explanation, to which we alluded in our Letter,² is disorder on the surface. For the Baxter-Wu model, Novotny and Landau³ recently showed, via Monte Carlo finite-size scaling, that small concentrations of quenched random impurities (i.e., missing spins) dramatically change the exponents ν and γ from their 4-state Potts values to 1.00 ± 0.07 and 1.95 ± 0.08 , respectively, consistent with the numbers extracted from the experiment.² Also noting this result, Family⁴ supplied further support using position-space renormalization group.

We are extending our simulations of hexagonal lattice gas systems, using Monte Carlo finite-size scaling and prefacing transformations.⁵ Preliminary investigations of pure systems with plausible interactions show no evidence of Ising behavior.

We are grateful to M. Schick, S. Fishman, and

F. Family for suggestions and informative comments. This work was supported in part by the U. S. Department of Energy under Grant No. AS05-79ER-10427.

L. D. Roelofs^(a)
N. C. Bartelt
T. L. Einstein

Department of Physics and Astronomy
University of Maryland
College Park, Maryland 20742

Received 3 August 1981

PACS numbers: 64.70.-p, 61.14.Hg, 64.60.Fr, 68.90.+g

^(a) Present address: Physics Department, Brown University, Providence, R.I. 02912.

¹M. Schick, preceding Comment [Phys. Rev. Lett. **47**, 1347 (1981)].

²L. D. Roelofs, A. R. Kortan, T. L. Einstein, and R. L. Park, Phys. Rev. Lett. **46**, 1465 (1981).

³M. A. Novotny and D. P. Landau, Phys. Rev. B **24**, 1468 (1981).

⁴F. Family, private communication.

⁵A. N. Berker, Phys. Rev. B **12**, 2752 (1975).