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ERRATA

Corrected Article: Depinning transition of a driven interface in the random-field Ising model around the upper critical dimension [Phys. Rev. E **66**, 026127 (2002)] *(7 pages)* . . . . . 069901(E)
L. Roters, S. Lübeck, and K. D. Usadel
Erratum: Pattern formation induced by nonequilibrium global alternation of dynamics [Phys. Rev. E **66**, 036216 (2002)] *(1 page)* . . . . . 069902(E)
J. Buceta, Katja Lindenberg, and J. M. R. Parrondo
Publisher's Note: Context-tree modeling of observed symbolic dynamics [Phys. Rev. E **66**, 056209 (2002)] *(1 page)* . . . . . 069903(E)
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