

ISING SYSTEMS IN RANDOM MAGNETIC FIELDS

K. Binder

Institut fuer Festkoerperforschung, Kernforschungsanlage,  
5170 Juelich, WEST-GERMANY

Y. Imry and E. Pytte

IBM Research Center, Yorktown Heights, New York 10598, USA.

The instability of ferromagnetically ordered state of random-field Ising systems for dimensionalities  $d \leq 3$  is discussed. It is shown that this instability can be interpreted as an instability against domain formation, if the field-induced interface roughness is taken into account. For  $d=3$ , the interface exhibits a "wiggly" structure on all length scales intermediate between the correlation length and the domain size. The resulting description of a "rounded transition" from the paramagnetic state to the domain state is discussed, and briefly compared to numerical calculations and experiments.