

Abstract Submitted  
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**The  $p, q$ -binomial distribution applied to the Ising model** PER HÅKAN LUNDOW, ANDERS ROSENGREN, KTH — Monte Carlo simulations have shown that the  $p, q$ -binomial distribution closely fits the magnetisation distribution for the  $d$ -dimensional Ising model at all temperatures when  $d > 4$ . It also fits well for some temperatures near  $T_c$  for  $d = 2, 3$  and especially so for  $d = 4$ . At high and low temperatures, away from  $T_c$ , the  $p, q$ -distribution always fits extremely well. However, it appears very difficult to determine how the parameters  $p$  and  $q$  depend of the temperature. From high and low temperature series expansions we can get partial results on their temperature dependence. Near  $T_c$  for  $d = 5$  we have approximately that  $p = 1 - 0.0736/L^5$  and  $q = 1 - 9.87/L^5$  whereas for  $d < 5$  the linear coefficient of  $q$  grows logarithmically. We show numerically how the parameters behave near  $T_c$  with increasing  $d$ .

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