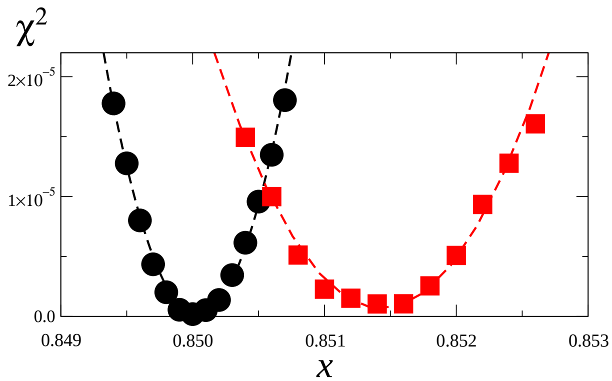

FIG. 2: (color online) Deviation from the power line behavior for the decay ($m_0 = 1$, left curve) and the increase ($m_0 = 0.0875$, right curve) cases.

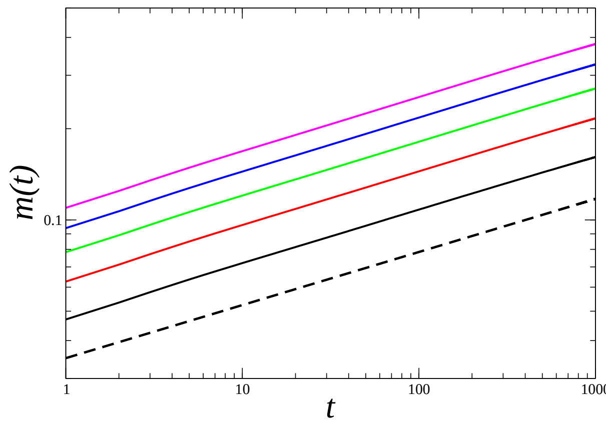

FIG. 3: (color online) Growing of the order parameter at $x_c(m_0)$, the continuous curves are for $m_0 = 0.0875$, 0.075, 0.0625, 0.5, 0.0375 from top to bottom. The dashed line represents the power law growing with $\theta = 0.1751$ (the result in this work for the majority vote model).

TABLE I: Critical point for initial disordered states.

m_0	0.0375	0.0500	0.0625	0.0750	0.0875
x_c	0.84929(10)	0.84972(9)	0.85019(6)	0.85076(5)	0.85147(2)

case for equilibrium systems. There is no doubt about the critical point obtained from the ordered phase, since $m_0 = 1$ is one of the fixed point under renormalization group transformations. However, one must remember that the power law is valid only in the limit $m_0 \to 0$ (the other fixed point) for the disorder case, assuming that the "real" critical point is located at this limit, one can proceed to evaluate the critical point for another values of m_0 and with this values extrapolate the critical point for the disordered phase. The results are showed in tableI

Once that each value $x_c(m_0)$ has been evaluated, the dynamical exponent θ can be obtained. For the evaluation of this exponent the simulations were performed with 1000 MCTS discarding the first time steps, since there is an initial time scale t_{mic} where the power law stabilizes $t_{mic} \sim 20$ (see Fig. 3). The results for the exponent θ are showed in table II.

With a extrapolation of these values to $m_0 = 0$ the value of the critical point and the θ exponent were evaluated (see Fig. 4). The result for the critical point was $x_c = 0.84860(10)$, which is clearly different from the ordered one, however both values are within the error bar from the obtained in the static case $0.848 \leq x_c \leq 0.852$. From now on the pseudo critical point evaluated with the decay process will be denoted as x_c^o and the evaluated with the growing process with x_c^d. This surprising result seems similar to the obtained for weak first-order phase transitions [10], where two pseudo-critical points exits due to the metastable states above and below the critical point. However, there is an important difference in this case: for weak order phase transitions the smaller critical point corresponds to the decay process, and the bigger corresponds to the growing process, contrary to the majority vote model case.

TABLE II: *theta* exponents for growing process.

m_0	0.0375	0.0500	0.0625	0.0750	0.0875
θ	0.1769(8)	0.1774(4)	0.1782(3)	0.1788(4)	0.1792(3)

In the evaluation of the exponent θ a linear extrapolation gives the result of 0.175(3), which is lower from the values of the two dimensional Ising model, $\theta = 0.191(1)$, and from the previously evaluated in references [11, 12] for the majority vote model, $\theta = 0.192(2)$. The difference with respect to the Ising model could be understood considering that the results obtained here seems to indicate a hole new dynamic. The differences with previous results for the majority model can be explained observing the simulations details used previously: first the critical point used was $x_=0.850$, which is above the result for x_c^d. Second the systems sizes used previously were really small ($L = 32$), at this size the growing process is not very long and is really hard to see the power law behavior.

One can obtain the dynamical exponent z evaluating the second moment of the magnetization at the critical point x_c^d

$$m^{(2)} \sim t^y, \qquad y = (d - 2\beta/\nu)/z, \tag{8}$$

and the autocorrelation

$$\begin{aligned} A(t) &= \textstyle\sum_i \sigma_i(t=0)\sigma(t), \\ A(t) &\sim t^{-\lambda}, \qquad \lambda = \tfrac{d}{z} - \theta. \end{aligned} \tag{9}$$