Voter model with time-delayed interaction

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We investigate the voter model with time-delayed interactions on *d*-dimensional lattices. In this model, each voter *i* takes one of the two possible states represented by the Ising spin $s_i = \pm 1$. A voter *i* updates its state $s_i(t)$ at time *t* at the unit rate by copying the spin state of a nearest neighbor voter at time $t - \tau$ with the time delay parameter τ.
The voter model is shown to be dual to sleeping and coagulating random walks. Using the duality, we obtain the asymptotic scaling behavior of the domain wall density in the large *t* and τ limits. Our study shows that the time delay leads to various intriguing phenomena. In this talk, we present the slowing down of ordering dynamics and the dimensional crossover caused by the time delay.