



Figure 1: **Ising model on a 2D lattice.** a: The sum of bivariate transfer entropies for all network pairs is depicted as a function of the inverse temperature β for the 2D Ising model on a square lattice of size L^2 , with $L = 16, 32, 64$, and 128. Simulations were performed with a Glauber dynamics and periodic boundary conditions. The vertical line corresponds to the critical point. The curves are shown to converge for L greater than 16. b: The Ising model on a 2D square lattice of size L^2 , with $L = 16$. Two different dynamics have been implemented: Metropolis (asterisks) and Glauber dynamics (squares). Although it exists a rescaling in both curves, their shape keep the same. a,b: Transfer entropies have been evaluated averaging over 20 runs of 10000 iterations, from a random initial condition and after stationary state convergence.