Aging phenomena in magnetic systems

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1. Introduction to aging phenomena
2. Phenomenology of aging
3. Aging in coarsening systems
Defining characteristics and symmetry properties of aging:
- slow dynamics (i.e. non-exponential relaxation)
- breaking of time-translation invariance
- dynamical scaling

Today:

general results for phenomenological scaling behaviour
perfect magnets  disordered magnets  spin glasses

quench from high to low temperatures
aging in the $d = 2$ Ising model quenched below $T_c$
fluctuation-dissipation ratio in the **spherical model**
protocols for integrated responses

thermoremanent  zero-field cooled  intermediate
scaling of the thermoremanent magnetization in the 2D Ising model
phase ordering

critical dynamics
field cooled susceptibility in the 2D Ising model
field cooled susceptibility in the critical 2D Ising model
scaling of the zero-field cooled susceptibility in the 2D Ising model
Aging in the $d = 2$ Ising model quenched below $T_c$
Introduction to aging phenomena

Phenomenology of aging

Aging in coarsening systems

\[ m(t) \]

\[ t^{\Theta} \]

\[ t^{-\beta/\nu z} \]
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