Gap Statistics of Avalanches in Disordered Spin Models[1] JISHNU
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the statistics of avalanches in amorphous materials subjected to shear have revealed
that a characteristic difference in the yielding of amorphous solids and depinning is
in the statistics of 'gaps' in strain between successive avalanche events. The difference is characterized by an exponent theta which is always zero in the depinning
model but is nonzero in some regions of the driving field in the yielding process. Disordered spin models have been model systems for studying avalanche responses and
motivated by the yielding process, we have investigated the gap statistics in two
disordered spin models in one dimension namely the standard random field Ising
model with nearest neighbor ferromagnetic coupling and a long range antiferromagnetic random field Ising model with power law antiferromagnetic couplings. Our
studies show that the theta exponent is always zero in the first model and the we
obtain a non-zero theta in the second model.

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None

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