Gap Statistics of Avalanches in Disordered Spin Models\textsuperscript{1} JISHNU NAMPOOTHIRI, KABIR RAMOLA, BULBUL CHAKRABORTY, Brandeis University, SANJIB SABHAPANDIT, Raman Research Institute — Recent studies of 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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