Avalanches in gauge theories STEFANOS PAPANIKOLAOU, Cornell University — I consider the non-equilibrium behavior of disordered systems which contain a residual gauge symmetry. Remarkably, in this limit each avalanche is a Wilson loop of the associated gauge theory. Such gauge invariant avalanches present interesting critical behavior that we characterize. Also, I show that, when the gauge symmetry is violated, the behavior drastically changes. Finally, the relation of these results to current experimental efforts on spin ice compounds is discussed.