

Three-dimensional loop models arise in many quantum problems, and in particular in quantum systems with  $SU(n)$  magnets. We consider a class of three-dimensional loop models where the system is driven across a phase transition between a phase with extended loops, related to the Neel state, and a phase with only short loops where some symmetries of the lattice are broken, related to a Valence Bond Solid. In this phase transition we find that the system shows the features of the deconfined criticality scenario: there is an emergent  $U(1)$  phase with short loops and the estimates of the anomalous dimensions are very large for the two order parameters, characterizing the two phases. Notably, the built-in isotropy of the loop model implies a dynamical exponent equal to unity. We find compatible results with a continuous transition, but with peculiar and strange features.