

Author: D. Ivanov

Co-author: G. Strubi

Title: **Vison excitations in near-critical quantum dimer models**

We study vison excitations in quantum dimer models interpolating between the Rokhsar-Kivelson models on the square and triangular lattices. In the square-lattice case, the model is known to be critical and characterized by $U(1)$ topological quantum numbers. Introducing diagonal dimers brings the model to a Z_2 resonating-valence-bond phase. We study variationally the emergence of vison excitations at low concentration of diagonal dimers, close to the critical point. We find that, in this regime, vison excitations are large in size and their structure resembles vortices in type-II superconductors.