Kinetic Antiferromagnetism in the Triangular Lattice

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Supplementary Plots of Clusters

Distinct colors correspond to different sublattices.

I. 3 SUBLATTICE-ORDER PRESERVING CLUSTERS

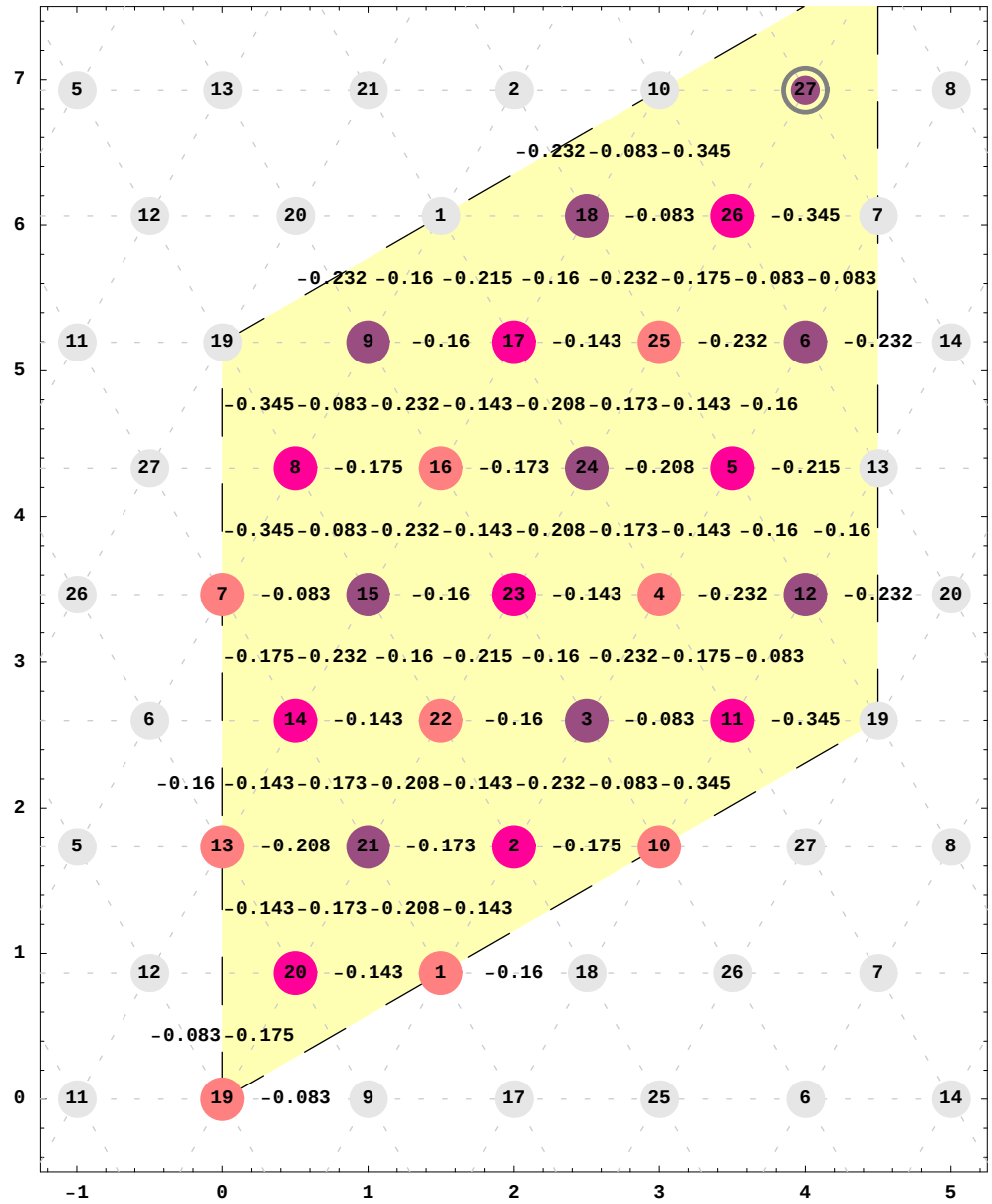

FIG. 1. The largest (27 site) cluster used in our exact diagonalizations: localized hole on site 27, decimal numbers between site i and j show correlation function $< \vec{S}_i \cdot \vec{S}_j >$, note behavior of correlation function on hexagon surrounding the hole.

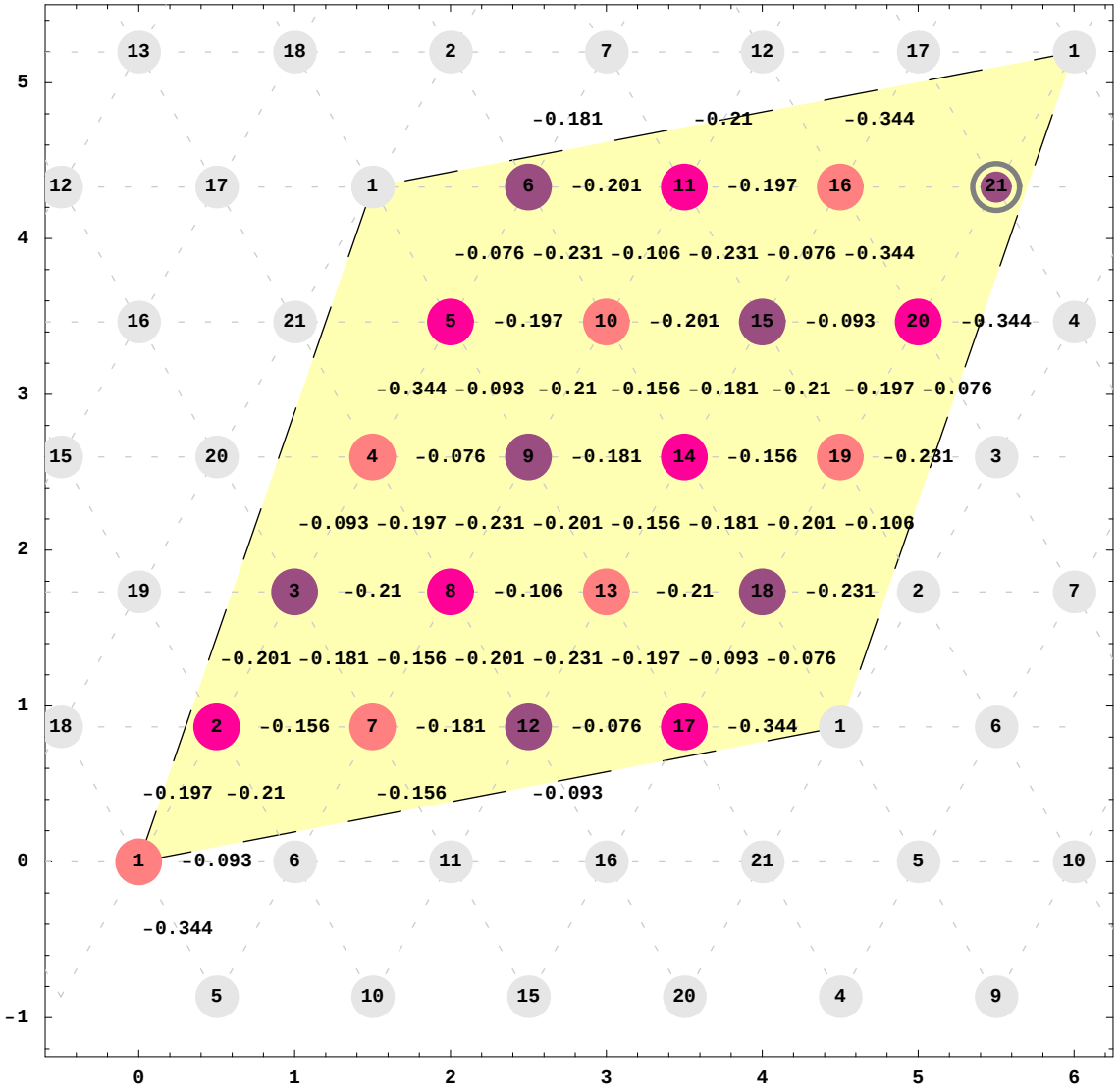

FIG. 2. The 21 site cluster. Note that this cluster maps onto a 1D ring with hoppings t_1, t_4 and t_5 by moving along the directions of numbered sites and using periodic boundary conditions.

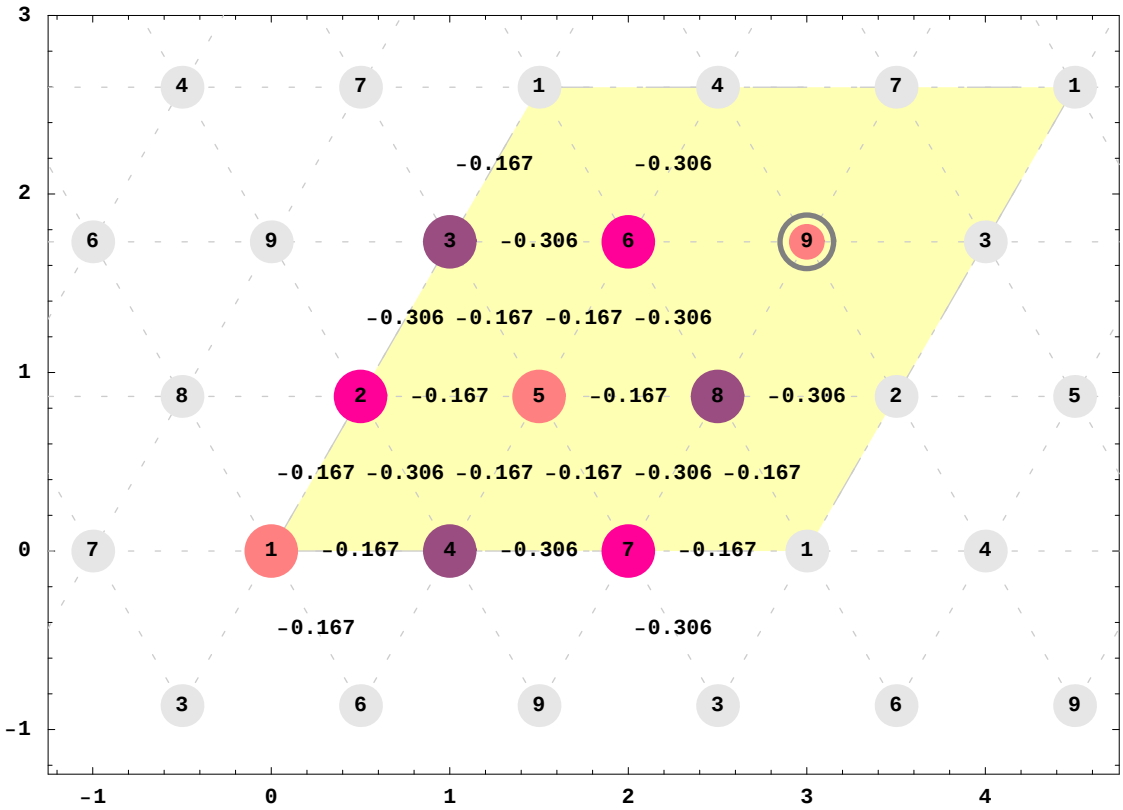

FIG. 3. Our smallest (9 site) and most symmetric cluster, nearest neighbors are also second neighbors and third neighbors are the same as the site itself. The high symmetry leads to a 7-fold degenerate ground state.

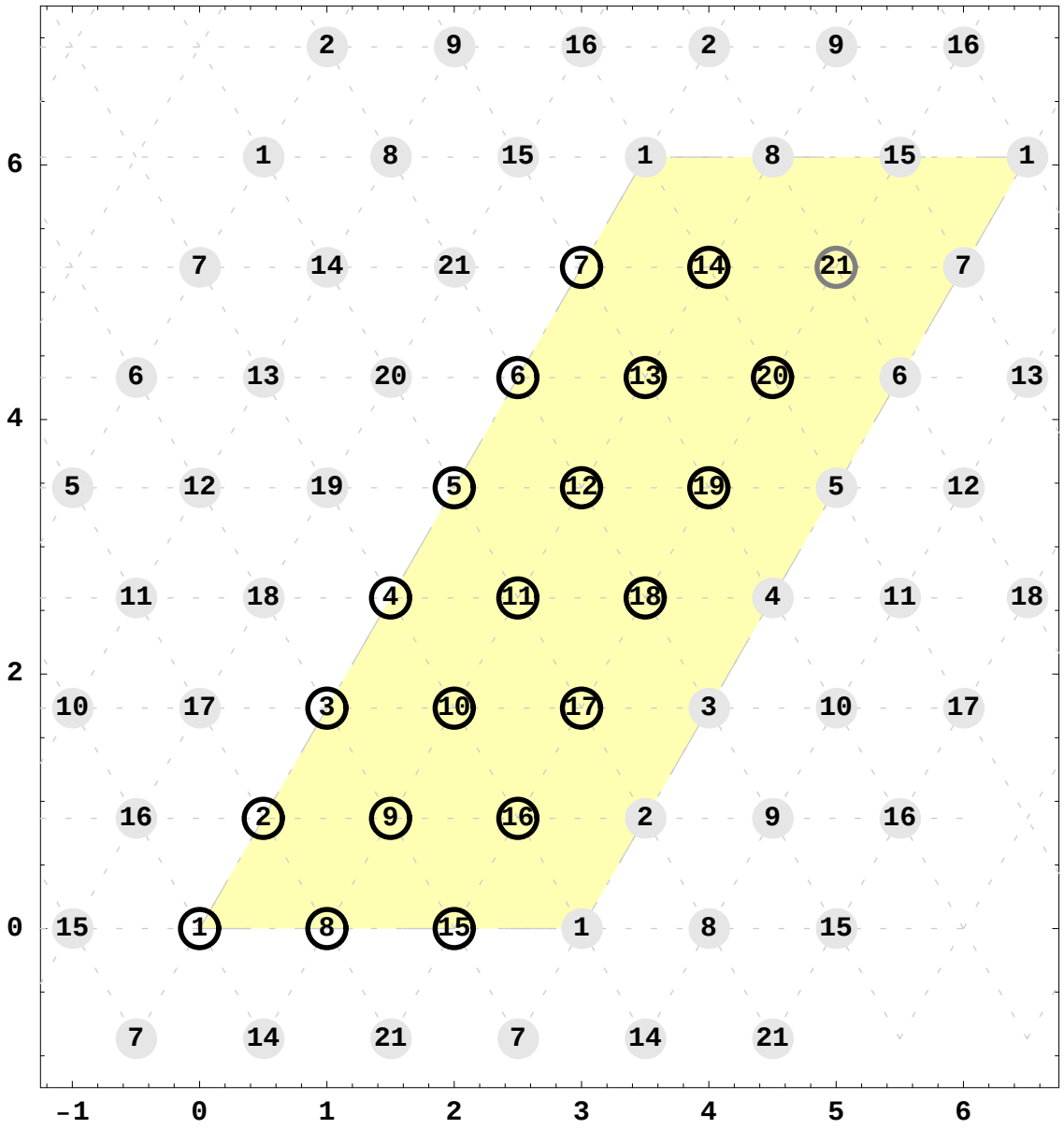

FIG. 4. The 21 site cluster frustrating 3-sublattice order. Check this by moving along the direction 1,2,3,... and placing 3 alternating classical Néel spins on consecutive sites, when arriving at the boundary a discontinuity arises.

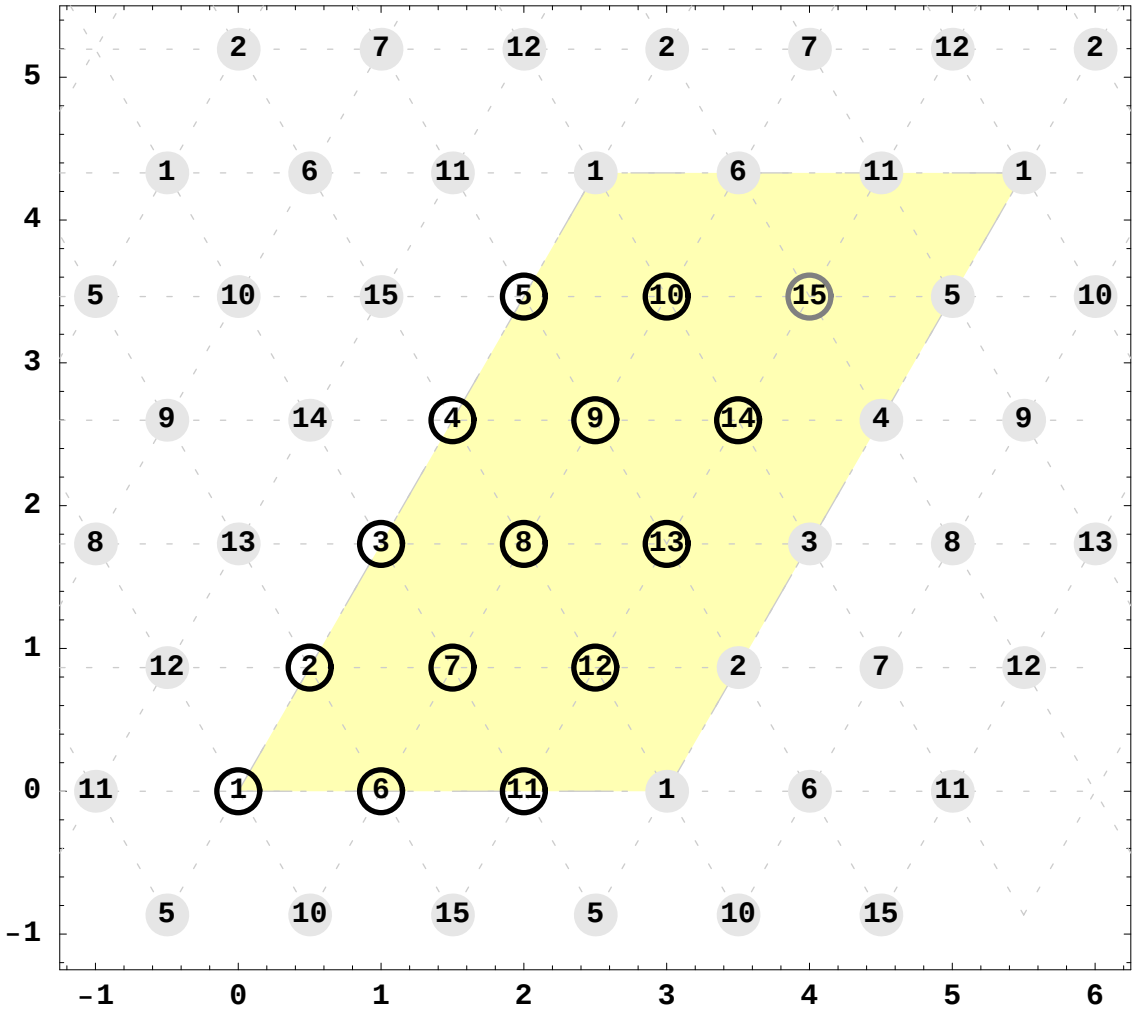

FIG. 5. The 15 site frustrated cluster.