

The role of dust particles in broken soliton super-symmetry

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Topological line defects in single-crystals are dipole vortex solitons. They interact weakly when they are far from each other and strongly when they are close to each other. However duality of fermions and bosons is suggested, but for simplicity far vortex solitons could be considered as fermions and close vortex solitons as bosons. Merging vortex solitons in single-crystals are simultaneously bosons and fermions. Prohibition of unbroken super-symmetry is discussed. Broken super-symmetry is clearly visualized on the microscale. Presence of dust particles at the center of merging vortex solitons is attributed to their central charge conservation.