

Abstract Submitted
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Weak confinement in the three-state Potts Field Theory SERGEI RUTKEVICH, Univ Duisburg-Essen — Kink topological excitations are quite common in one-dimensional quantum ferromagnetic systems with the spontaneously broken discrete symmetry. Application of the external magnetic field h induces the long-range attractive force between kinks leading to their confinement. While in the Ising Field Theory the particle sector in the confinement regime contains only the two-kink bound states ("the mesons"), in the three-state Potts Field Theory (PFT) the three-kink bound states ("the baryons") can exist as well. In the weak confinement regime, which is realized at small external magnetic fields, the meson masses in the PFT can be determined analytically in the leading order in h by means of the solution of a quantum-mechanical problem for two non-relativistic particles interacting with a linear attractive potential, and my means of the WKB method. The masses of lightest baryons in the three-state PFT were calculated by the numerical solution of a three-particle quantum-mechanical problem. The obtained mass spectra for the PFT mesons and baryons were confirmed recently by Lencés and Takács in numerical calculations based on the truncated conformal space approach.

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