Two-Dimensional Vector Field Visualization Of Gursey Instantons

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Abstract:

It is known that instantons are classically topological solitons. The spinor type instanton solutions are found in four-dimensional conformally invariant pure spinor Gursey model [1] with nonlinear $\left(\overline{\psi}\,\psi\right)^{\frac{4}{3}}$ self-coupled spinor term by the spontaneous symmetry breaking of the conformal invariance of ψ spinor field, i.e. $\left\langle 0\,\middle|\,\overline{\psi}\,\psi\,\middle|\,0\right\rangle \neq 0$ [2]. In this work, we examine the vector fields of model to provide a better understanding the dynamic of spinor type Gursey instantons in phase space.

References:

1. F. Gursey, Nuovo Cimento 3,988, (1956).
2. Akdeniz K. G., On Classical Solutions of Gursey's Conformal-Invariant Spinor Model, Nuovo Cimento 33 (1981) 40.