Inner Structure of Statistical Gauge Potential in Chern-Simons-Ginzburg-Landau Theory

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Abstract: Based on the decomposition theory of the U(1) gauge potential, the inner structure of the statistical gauge potential in the Chern-Simons-Ginzburg-Landau (CSGL) theory is studied. We give a new creation mechanism of the statistical gauge potential. Furthermore, making use of the φ-mapping topological current theory, we obtain the precise topological expression of the statistical magnetic field, which takes the topological information of the vortices.

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