

Charge as the Stereographic Projection of Geometric Precession on Pseudospheres

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Abstract

In this paper geometric phases (Berry and Aharonov-Bohm) are generalized to nonlinear topological phase fields on pseudospheres, where the coordinate vector field is parallel transported along the signal/soliton vector field with Levi-Civita connection.

Projective $PSL(2, R)$ symmetry describes the relativistic self-interacting bosonic sine-Gordon field. A Coulomb potential can be induced as the stereographic projection of a harmonic oscillator potential mapping angles or phases to distances and vice versa resulting in mutual coupling with a generalized coupling constant given by a nonlinear iteration. With single-valuedness requirement in 137-gonal symmetry it fits within a few ppb uncertainty to the Sommerfeld fine structure constant.

Keywords: nonlocal, nonabelian, nonlinear, discrete, non-perturbative, supratransmission, supraconductivity, transparency, breather, nonabelian, nonlocal, nonperturbative, computing, pseudosphere, phase, berry, Gordon, sine-Gordon, Baecklund, Aharonov, Bohm, Thirring, Lobachevski, Chebyshev, Kaehler, stereographic, projection, fine structure, iteration, iterative

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