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SUPERCONFORMAL-LIKE TRANSFORMATIONS AND NONLINEAR REALIZATIONS

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Abstract. We consider various properties of $N = 1$ superconformal-like transformations which generalize conformal transformations to supersymmetric and noninvertible case. Alternative tangent space reduction in $N = 1$ superspace leads to some new transformations which are similar to the anti-holomorphic ones of the complex function theory, which gives new odd $N = 1$ superanalog of complex structure. They are dual to the ordinary superconformal transformations subject to the Berezinian addition formula presented, noninvertible, highly degenerated and twist parity of the tangent space in the standard basis, and they also lead to some "mixed cocycle condition". A new parametrization for the superconformal group is presented which allows us to extend it to a semigroup and to unify the description of old and new transformations. The nonlinear realization of invertible and noninvertible $N = 1$ superconformal-like transformations is studied by means of the odd curve motion technique and introduced clear diagrammatic method.

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