Deforming the Lie superalgebra of contact vector fields module of symbols

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Abstract

We study non-trivial deformations of the natural action of the Lie superalgebra $\mathcal{K}(1)$ of contact vector fields (also called superconformal Lie algebra) on the (1,1)-dimensional superspace $\mathbb{R}^{1|1}$ on the superspace of symbols of linear differential operators from the superspace of weighted densities $\mathfrak{F}_\lambda$ to $\mathfrak{F}_\mu$. We calculate obstructions for integrability of infinitesimal multi-parameter deformations and determine the commutative associative algebra corresponding to the miniversal deformation in the sense of A. Fialowski and D.B. Fuchs.