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Functional analytic issues in $\mathbb{Z}_2^n$-geometry. (English) Zbl 07149411
Rev. Unión Mat. Argent. 60, No. 2, 611-636 (2019).

$\mathbb{Z}_2^n$-*geometry*, which this paper is concerned with, was introduced in [*T. Covolo* et al., J. Math. Phys. 57, No. 7, 073503, 16 p. (2016; Zbl 1345.58003); J. Geom. Phys. 62, No. 11, 2294–2319 (2012; Zbl 1308.15023)]. The main results of the paper go as follows:

- The structure sheaf of a $\mathbb{Z}_2^n$-manifold is a nuclear Fréchet sheaf of $\mathbb{Z}_2^n$-graded $\mathbb{Z}_2^n$-commutative algebras.
- All $\mathbb{Z}_2^n$-morphisms and all $\mathbb{Z}_2^n$-differential operators are continuous with respect to the locally convex topology of the structure sheaf, and they are continous with respect to the $\mathcal{J}$-adic topology of the structure sheaf with $\mathcal{J}$ the kernel of the projection into base functions.

The results in the paper are extensions of similar results in the standard supercase to the more challenging $\mathbb{Z}_2^n$-context.

Reviewer: Hirokazu Nishimura (Tsukuba)

MSC:

58A50 Supermanifolds and graded manifolds
58C50 Analysis on supermanifolds or graded manifolds
46A04 Locally convex Fr
´46S60 Functional analysis on superspaces (supermanifolds) or graded spaces

Keywords:

$\mathbb{Z}_2^n$-geometry; nuclear Fréchet sheaves; sheaves of differential operators

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