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Differentiability space of a product measure. (English. Russian original) Zbl 0744.46032

Mosc. Univ. Math. Bull. 44, No. 2, 105-108 (1989); translation from Vestn. Mosk. Univ., Ser. I 1989, No. 2, 81-84 (1989).

In his study of differentiable measures μ on a sequentially complete locally convex space X, *V. I. Bogachev* [Mat. Zametki 36, No. 1, 51-64 (1984; Zbl 0576.28022); Mat. Sb., Nov. Ser. 127(169), No. 3(7), 336-351 (1985; Zbl 0582.46050)] showed among others that, if X is quasi-complete, the space $D(\mu)$ of differentiability, i.e. the subspace of X of the vectors in the directions of which μ is differentiable is included in a Hilbert space compactly imbedded in X, and, by a counterexample with a product measure, that it is not generally isomorphic to a Hilbert space. This note gives some characterizations of this space $D(\mu)$ of a product measure $\mu = \prod_{n=1}^{\infty} \mu_n$ on $\mathbb{R}^\infty = \prod_{n=1}^{\infty} \mathbb{R}$ where each μ_n is a differentiable probability measure on $\mathbb{R}$ with density relative to the Lebesgue measure.

Reviewer: T.Ichinose (Kanazawa)

MSC:

46G12	Measures and integration on abstract linear spaces
28C20	Set functions and measures and integrals in infinite-dimensional spaces (Wiener measure, Gaussian measure, etc.)
60B11	Probability theory on linear topological spaces
58D20	Measures (Gaussian, cylindrical, etc.) on manifolds of maps

Keywords:

differentiable measures; sequentially complete locally convex space; product measure; differentiable probability measure