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Integrals with respect to vector-valued measures: Theoretical problems and applications.
(English) Zbl 0827.28007

Bokut', L. A. (ed.) et al., Third Siberian school on algebra and analysis. Proceedings of the third Siberian school, Irkutsk State University, Irkutsk, Russia, August 30-September 4, 1989. Providence, RI: American Mathematical Society. Transl., Ser. 2, Am. Math. Soc. 163, 171-184 (1995).

Let B and F be Banach spaces, and let $L(B, F)$ be the space of continuous linear mappings from B to F. Let (Ω, Σ) be a measurable space. The paper examines the integration theory for maps $f : \Omega \to L(B, F)$ with respect to B-valued measures. After establishing the straightforward properties of integrals, the paper takes on the subject of transition measures and their representation. Two forms of disintegration results are presented, one with respect to a strong integral, and the other with respect to a weak integral. An application of the results is given in the direction of developing the vector-valued analog of conditional expectation. Other potential applications are demonstrated, in addressing vector-valued calculus problems.

For the entire collection see [Zbl 0816.00016].

Reviewer: Z.Artstein (Rehovot)

MSC:

28B05 Vector-valued set functions, measures and integrals
46G10 Vector-valued measures and integration

Keywords:

vector-valued measures; vector-valued integrals; disintegration