

Schwabik, Štefan

Linear Stieltjes integral equations in Banach spaces. (English) Zbl 0937.34047

Math. Bohem. 124, No. 4, 433-457 (1999).

Summary: The background of the theory is the Kurzweil approach to integration, based on Riemann-type integral sums. It is known that the Kurzweil theory leads to the (nonabsolutely convergent) Perron-Stieltjes integral in the finite-dimensional case. Here, basic results concerning equations of the form

$$x(t) = x(a) + \int_a^t d[A(s)]x(s) + f(t) - f(a)$$

are presented on the basis of the Kurzweil-type Stieltjes integration. The author is looking for generally discontinuous solutions which belong to the space of Banach space-valued regulated functions in the case that A is a suitable operator-valued function and f is regulated.

MSC:

- [34G10](#) Linear differential equations in abstract spaces
- [45N05](#) Abstract integral equations, integral equations in abstract spaces
- [45A05](#) Linear integral equations
- [26A39](#) Denjoy and Perron integrals, other special integrals
- [26A42](#) Integrals of Riemann, Stieltjes and Lebesgue type

Cited in **1** Review
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Keywords:

linear Stieltjes integral equations; generalized linear differential equation; Banach space

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