GENERALIZED WELL-POSEDNESS OF HYPERBOLIC VOLTERRA EQUATIONS OF NON-SCALAR TYPE[*]

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Abstract

In the present paper, we introduce the class of (A, k)-regularized C-pseudoresolvent families, analyze themes like generation, hyperbolic perturbations, regularity and local properties, and furnish several illustrative examples. The study of differentiability of (A, k)-regularized C-pseudoresolvent families seems to be new even in the case $k(t) \equiv 1$ and $C \equiv I$.

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keywords: (A, k)-regularized C-pseudoresolvent family, hyperbolic Volterra equation, well-posedness

1 Introduction and preliminaries

Our intention in this paper is to enquire into the basic structural properties of a fairly general class of (local) (A, k)-regularized C-pseudoresolvent families. This class of pseudoresolvent families is one of the main tools in the analysis of ill-posed hyperbolic Volterra equations of non-scalar type. It is worthwhile to mention here that there are by now only a few references concerning non-scalar evolutionary Volterra equations (cf. [10]-[11] and [23]).