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On Maximal Regularity for a Class of Evolutionary Equations

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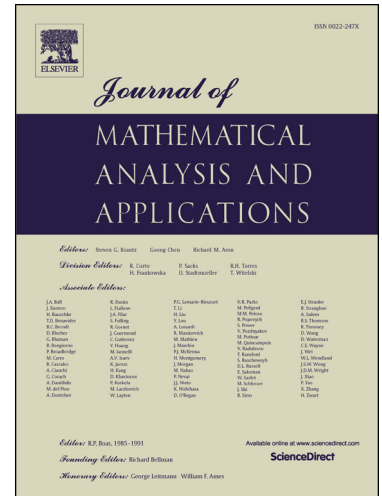
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On Maximal Regularity for a Class of Evolutionary Equations.

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The issue of so-called maximal regularity is discussed within a Hilbert space framework for a class of evolutionary equations. Viewing evolutionary equations as a sum of two unbounded operators, showing maximal regularity amounts to establishing that the operator sum considered with its natural domain is already closed. For this we use structural constraints of the coefficients rather than semi-group strategies or sesqui-linear form methods, which would be difficult to come by for our general problem class. Our approach, although limited to the Hilbert space case, complements known strategies for approaching maximal regularity and extends them in a different direction. The abstract findings are illustrated by re-considering some known maximal regularity results within the framework presented.

Keywords and phrases: maximal regularity, evolutionary equations, material laws, coupled systems

Mathematics subject classification 2010: 35B65, 35D35, 58D25

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