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| Nota di contenuto | Conventions -- Mathematical Introduction -- Prerequisites -- Strongly Continuous Semigroups -- Examples of Generators of Strongly Continuous Semigroups -- Intertwining Relations, Operator Homomorphisms -- Examples of Constrained Systems -- Kernels, Chains, and Evolution Operators -- The Linear Evolution Equation -- Examples of Linear Evolution Equations -- The Quasi-Linear Evolution Equation -- Examples of Quasi-Linear Evolution Equations. |
| Sommario/riassunto | The present volume is self-contained and introduces to the treatment of linear and nonlinear (quasi-linear) abstract evolution equations by methods from the theory of strongly continuous semigroups. The theoretical part is accessible to graduate students with basic knowledge in functional analysis. Only some examples require more specialized knowledge from the spectral theory of linear, self-adjoint operators in Hilbert spaces. Particular stress is on equations of the hyperbolic type since considerably less often treated in the literature. Also, evolution equations from fundamental physics need to be compatible with the theory of special relativity and therefore are of hyperbolic type. Throughout, detailed applications are given to hyperbolic partial differential equations occurring in problems of current theoretical |

physics, in particular to Hermitian hyperbolic systems. This volume is thus also of interest to readers from theoretical physics.