

Werk

Label: Table of literature references

Jahr: 1979

PURL: https://resolver.sub.uni-goettingen.de/purl?31311157X_0104|log43

Kontakt/Contact

[Digizeitschriften e.V.](#)
SUB Göttingen
Platz der Göttinger Sieben 1
37073 Göttingen

✉ info@digizeitschriften.de

$$(II) \left\| \frac{d^{p+q}}{d\lambda^{p+q}} (\lambda^q (\lambda I - A)^{-1}) \right\| \leq \frac{M p!}{(\lambda - \omega)^{p+1}} q! q^q \text{ for every } \lambda > \omega \text{ and } p, q \in \{0, 1, \dots\}.$$

Proof. A relatively easy consequence of the Hille-Yosida theorem, of the uniqueness theorem for the Laplace transform and of Theorem 5. A direct proof based only on Theorem 5 is also possible.

15. Remark. The preceding theorem gives a “real” characterization of the generators of parabolic semigroups. However, this problem is usually studied in a somewhat different setting which is based on “complex” characterizations of both the parabolic semigroups (cf. Remark 13) and their generators (see, e.g., [7], [8]).

16. Remark. In a subsequent paper (The Laplace transform of analytic vector-valued functions (complex conditions), to appear in this Journal), we shall study complex equivalents of both properties (A) and (B) from Theorem 5. These equivalents will be found in the form of analytic continuations of the functions F and f to certain angular domains symmetric around the real half-axis. These analytic continuations must satisfy certain growth conditions, but the relations between the growth characterizations of F and f are less simple and direct.

References

- [1] *Sova, M.*: Linear differential equations in Banach spaces. *Rozpravy Československé akademie věd, Řada matematických a přírodních věd*, 85 (1975), No. 6, 1–82.
- [2] *Sova, M.*: The Laplace transform of exponentially Lipschitzian vector-valued functions (to appear in this Journal).
- [3] *Sova, M.*: The Laplace transform of exponentially weakly compactly bounded vector-valued functions (to appear in this Journal).
- [4] *Miyadera, I.*: On the representation theorem by the Laplace transform of vector-valued functions. *Tôhoku Math. J.*, 8 (1956), 170–180.
- [5] *Widder, D.V.*: *The Laplace Transform*, 1946.
- [6] *Yosida, K.*: On the differentiability of semi-groups of linear operators. *Proc. Japan Acad.* 34 (1958), 337–340.
- [7] *Yosida, K.*: *Functional analysis*, 1974.
- [8] *Hille, E., Phillips, R. S.*: *Functional analysis and semigroups*, 1957.
- [9] *Mizohata, S.*: *The theory of partial differential equations*, 1973.

Author's address: 115 67 Praha 1, Žitná 25 (Matematický ústav ČSAV).