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ASYMPTOTIC STABILITY OF A PERTURBED ABSTRACT DIFFERENTIAL EQUATIONS IN BANACH SPACES

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Abstract. This paper is mainly concerned with the asymptotic stability of the solutions of a perturbed abstract differential equation in Banach spaces. Let A be a generator of an exponentially stable operator semigroup and let $C(t)$, $t \geqslant 0$ be a linear bounded variable operator. Assuming that the perturbation $F(t,x)$ is sufficiently small norm for the equation $\frac{dx}{dt} = Ax + C(t)x + F(t,x)$, we derive the Lyapunov asymptotic stability conditions. These results are applied to partial differential equations.

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