

Results on maximal regularity in the non-autonomous case

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It is known that the L^p -maximal regularity for a generator of an holomorphic semigroup on a Banach space is independent of p . In the case of an Hilbert space, there is always maximal regularity for this class of operators. Moreover, Hieber/Prüss and Coulhon/Duong showed that if the semigroup verifies a certain heat kernel estimate on L^2 , then we also have L^p -maximal regularity on all L^q . We show that the same results are true if we consider the non-autonomous Cauchy problem

$$u'(t) + A(t)u(t) = f(t), \quad u(0) = 0$$

for a family $A(t)$, $t \in [0, T]$, where the operators $-A(t)$ generate holomorphic semigroups on a Banach space and verify a certain regularity condition.