

# Abstract

The notions of resolvent, pseudoresolvent and a few results along with some remarkable properties are recalled. A new concept, the  $L_\infty$ -type pseudoresolvent is introduced.

The aim of this work is firstly to give a characterization theorem for  $L_\infty$ -type pseudoresolvents and for the generators of  $L_\infty$ -type pseudoresolvents. Moreover, the connection between the  $L_\infty$ -type pseudoresolvents and  $C_0$ -equicontinuous semigroups is pointed out.

Secondly, the main part of this work is devoted to approximation of pseudoresolvents and their generators. If  $R_n, R : \Lambda \rightarrow L(X), n \geq 1$  are generated pseudoresolvents and  $A_n, A$  their generators, then it is investigated under which conditions  $A$  is approximated by  $A_n$  and  $R$  is approximated by  $R_n, n \geq 1$ .

In addition, the conditions under which a sequence of generated pseudoresolvents approximates a pseudoresolvent are given, and in this case the connection between generators is studied.

In the last chapter we have proved a theorem of characterization for exponentially bounded semigroups. To any exponentially bounded semigroup we have associated a projective family of semigroups acting on Banach spaces.