

# STABILITY OF POSITIVE SEMIGROUPS ON $L^p$ AND ON SPACES OF CONTINUOUS FUNCTIONS

JOCHEN GLÜCK

ABSTRACT. A general obstacle in the stability analysis of  $C_0$ -semigroups is that such semigroups do not satisfy the spectral mapping theorem, in general. Hence, even if the spectrum of the generator is contained in the left half plane and bounded away from the imaginary axis, the semigroup might not converge to 0 as  $t \rightarrow \infty$ .

An exception, though, are semigroups on  $L^p$  and on spaces of continuous functions which leave the positive cone invariant: for those semigroups the long-term behaviour is indeed determined by the spectral bound of the generator. This is nowadays a classical result, but until recently all known proofs were technically quite involved.

In this talk we briefly review the history of the subject and then present a new and very simple proof for this result, which was first given by Vogt on  $L^p$ -spaces and then adapted to spaces of continuous functions by Arora and the speaker.

*Email address:* jochen.glueck@uni-passau.de