

WEIGHTED NORM CONCEPTS IN CONTROL THEORY AND APPLICATIONS

BERNHARD HAAK

Abstract: We study the behavior of an abstract linear system $x'(t) + Ax(t) = Bu(t)$, $y(t) = Cx(t)$ with initial condition $x(0) = x_0$ in Banach spaces when choosing weighted L^p -norms for the input function u and the observation y . For bounded analytic semigroups such systems allow a characterisation of admissibility by resolvent estimates and sufficient conditions for wellposedness. As an application we establish some existence results of linear systems under non-linear feedback.

This is joint work with Peer Kunstmann. The results are mainly taken from 'Weighted admissibility and wellposedness of linear systems in Banach spaces', a preprint (submitted for publication) that is available on ArXiv.