

SCALAR TYPE SPECTRAL OPERATORS
IN
LOCALLY CONVEX SPACES

Peter G. Dodds

INTRODUCTION

In this paper, we will present a mini-survey of joint work with Ben de Pagter and Werner Ricker concerning the structure of scalar-type spectral operators in locally convex spaces. The details will appear elsewhere [4], [5], [6], [7]. The central theme is that of reflexivity, which goes back to the following special case of the well known double commutant theorem of von Neumann: if M is a mutually commuting family of self-adjoint projections in a Hilbert space then the strongly closed algebra generated by M consists precisely of those continuous linear operators which leave invariant each M -invariant subspace. A non-trivial extension of this theorem to the setting of Banach spaces was obtained by Bade [1] and this note is concerned with various extensions of the reflexivity theorem of Bade to the more general setting of locally convex spaces.

1. ALGEBRAS GENERATED BY BOOLEAN ALGEBRAS OF PROJECTIONS

In the sequel, X will denote a locally convex space which is assumed to be quasicomplete. $L(X)$ will denote the space of continuous linear operators on X , equipped with the topology of pointwise convergence on X . It will be assumed throughout that $L(X)$ is sequentially complete. A Boolean algebra of projections in X is a family M of