

Spectral characterisation of dissipative extensions of the operator of multiplication in de Branges' spaces

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Abstract

A linear operator is regular if the whole complex plane consists of quasi-regular points. In addition, every linear operator in the class of regular closed symmetric operators with deficiency indices $(1,1)$ is unitarily equivalent to the operator of multiplication by the independent variable in a certain de Branges' space. The domain of this operator may not be dense in the space.

In this talk I shall start with the theory of linear relations in Hilbert spaces, which was von Neumann's motivation to study the adjoint of a non-densely defined operator. I shall then give a characterisation of the dissipative extensions of the operator of multiplication. I shall conclude by describing some properties of these dissipative extensions.