On a Model Description for Normal Operators of D_κ^+-Class in Krein Spaces

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In this work a functional model representation of a normal operator N acting in a Krein space is considered. We assume that N and its adjoint operator $N^\#$ have a common invariant subspace L_+ which is a maximal nonnegative subspace and has a representation as a sum of a finite-dimensional neutral subspace and a uniformly positive subspace (i.e. N belomgs to so-called D_κ^+-class). For N we construct a model representation as the multiplication operator by a scalar function acting in a suitable functional space. This representation is applied to an existence problem of a square root for the operator $N^\#N$ and another problems related to the polar representation for normal operators of D_κ^+-class.