PACIFIC JOURNAL OF MATHEMATICS
Vol. 147, No. 2, 1991

ON INVARIANT SUBSPACES OF SEVERAL VARIABLE BERGMAN SPACES

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By using a natural localization method, one describes the finite codimensional invariant subspaces of the Bergman n-tuple of operators associated to some bounded pseudoconvex domains in $\mathbb{C}^n$, with a sufficiently nice boundary.

0. Introduction. Some recent investigations have been concerned with the structure and classification of the invariant subspaces of the Bergman n-tuple of operators, cf. Agrawal-Salinas [**2**], Axler-Bourdon [**4**], Bercovici [**5**], Douglas [**7**], Douglas-Paulsen [**8**]. Due to the richness of this lattice of invariant subspaces, the additional assumption on finite codimension was naturally adopted by the above mentioned authors as a first step towards a better understanding of its properties.

The present note arose from the observation that, when the L^2-bounded evaluation points of a pseudoconvex domain lie in the Fredholm resolvent set of the associated Bergman n-tuple, then the description of finite codimensional invariant subspaces is, at least conceptually, a fairly simple algebraic matter. This simplification requires only the basic properties of the sheaf model for systems of commuting operators introduced in [**11**].

The main result below is also available by some other recent methods. First is the quite similar technique of localizing Hilbert modules over function algebras, due to Douglas [**7**] and Douglas and Paulsen [**8**], and secondly is the study of the so-called canonical subspaces of some Hilbert spaces with reproducing kernels, developed by Agrawal and Salinas [**2**]. Both points of view will be discussed in §2 of this note.

In fact the Bergman space of a pseudoconvex domain is only an example within a class of abstract Banach $\mathcal{O}(\mathbb{C}^n)$-modules, whose finite codimensional submodules turn out to have a similar structure. The precise formulation of this remark ends the note.

We would like to thank the referee, whose observations pointed out some bibliographical omissions in a first version of the manuscript.

1. Pseudoconvex domains. Let Ω be a bounded pseudoconvex domain in $\mathbb{C}^n$, $n \geq 1$, and let $L^2_a(\Omega)$ denote the corresponding Bergman