

Invariant Subspaces of Positive operators on Riesz Spaces and Observations on $CD_0(K)$ -spaces

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Abstract. However simple it may seem, the concept of invariant subspace is of fundamental importance and ubiquitous. Having its roots in finite-dimensional linear algebra, it became, since the second quarter of the 20th century, one of the main tools to investigate and to understand the structure of operators. The general *invariant subspace problem* concerns bounded linear operators on complex, infinite-dimensional, separable Hilbert spaces, which are, up to isomorphism, the space of all square-summable sequences of complex numbers, and asks whether there exists a subspace that is mapped to itself by such an operator.

The main goal of the talk, which consists of two main parts, is twofold:

The first one is about the invariant subspace problem and it is aimed to extend some results, chosen on an ad hoc basis from the work originally obtained in the setting of positive operators on Banach lattices by numerous authors, to those for positive or close-to-them operators or operator families on locally convex solid Riesz spaces. The second goal of the talk is to present the so-called Alexandroff duplicates and to investigate $CD_{\Sigma, \Gamma}(K, E)$ -type spaces, and then to develop a representation theorem for the space $CD_{\Sigma, \Gamma}(K, E)$ as the space of E -valued continuous functions on the generalized Alexandroff duplicate of K .