On Krein C^*-module over Krein C^*-algebras

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Abstract

The study of the space with indefinite inner product started to appear in physics with the work on special relativity by H. Minkowsky and were later used by P. Dirac and W. Pauli in quantum field theory. On the other hand, properties of the involution in quantum field theory is not well-known, for example, the involution on the algebra $\mathcal{A}$ of field operators in quantum electrodynamics satisfies neither the C^*-condition nor the positivity of the spectrum of the operator $I + xx^*$ for $x \in \mathcal{A}$. The aim of this talk is to show some properties of the Banach algebras with indefinite involution (Krein C^*-algebras) and of the modules over Krein C^*-algebras with indefinite $\mathcal{A}$-inner product (Krein C^*-modules). If the time allows, I will define the frames in Krein C^*-module over Krein C^*-algebras and I will show the frame Decomposition Theorem.