

1077-46-1717

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On a version of dual space characterization of real Locally C-algebras.*

A celebrated Jordan-Takeda-Grothendieck theorem provides a dual space characterization of complex C*-algebras among complex Banach *-algebras with continuous involutions as those in which every continuous linear functional is a difference of two positive linear functionals. In 1993 a version of a dual characterization of complex locally C*-algebras among complete complex Hermitean lmc*-algebras was published by Bhatt and Karia. Recently Katz announced a version of a dual characterization of complex locally C*-algebras among complex lmc*-algebras. In the present paper we generalize Katz's result to obtain the following version of a dual characterization of real locally C*-algebras: THEOREM. A complete real lmc*-algebra is real topologically *-isomorphic to a real locally C*-algebra iff every continuous linear functional on it is a finite linear combination of representable linear functionals. (Received September 20, 2011)