STRUCTURE OF LOCALLY IDEMPOTENT ALGEBRAS

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This paper is dedicated to Professor Themistocles M. Rassias.

Submitted by M. Joita

Abstract. It is shown that every locally idempotent (locally m-pseudoconvex) Hausdorff algebra A with pseudoconvex von Neumann bornology is a regular (respectively, bornological) inductive limit of metrizable locally m-(k_B-convex) subalgebras A_B of A. In the case where A, in addition, is sequentially $\mathcal{B}_A$-complete (sequentially advertibly complete), then every subalgebra A_B is a locally m-(k_B-convex) Fréchet algebra (respectively, an advertibly complete metrizable locally m-(k_B-convex) algebra) for some $k_B \in (0, 1]$. Moreover, for a commutative unital locally m-pseudoconvex Hausdorff algebra A over $\mathbb{C}$ with pseudoconvex von Neumann bornology, which at the same time is sequentially $\mathcal{B}_A$-complete and advertibly complete, the statements (a)–(j) of Proposition 3.2 are equivalent.

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