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Multipliers, factorization property and the strong topological centre

ABSTRACT. For a Banach algebra A with a bounded approximate identity, Anthony To-Ming Lau and Ali Ülger study the question when A^* factors on the left or on the right, i.e. $A^* = A^*A$ or $A^* = AA^*$ respectively. They characterize when A^* factors in term of the topological centre of A^{**} .

In this talk, we explore the link between these factorization properties and the left, respectively right, multipliers of A . This study leads us to introduce the notion of the left, respectively right, strong topological centre of A^{**} . The left strong topological center of A^{**} is defined by

$$SZ_l = \{m \in A^{**} \mid \exists T \in B(A) : \lambda_m = T^{**}\}.$$

where λ_m denotes left multiplication by m on A^{**} with respect to the left Arens product. We give new characterizations of the factorization property. As a corollary, we obtain the characterization of Lau and Ülger and results of Hu, Neufang and Ruan. We also discuss the link between the factorization property and the notion of Arens semi-regularity as introduced by Micheal Grosser.