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Exponential length of commutator unitaries of simple AH C-algebras.*

Abstract: Let A be a unital C^*-algebra, and let $CU(A)$ denote the closure of the set of all commutators of the unitary group of A. Let $cel_{CU}(A)$ denote supremum of exponential lengths of all $u \in CU(A)$. Huaxin Lin proved that if A is a TAI algebra, then $cel_{CU}(A) \leq 2\pi$. Lin also proved that for each countable ordered weakly unperforated Riesz group (G, G_+) and each countable group H, there is a simple AH algebra of tracial rank one such that $(K_0(A), K_0(A)_+, K_1(A)) = (G, G_+, H)$ and $cel_{CU}(A) > \pi$. In this talk, I will present the following theorem: for any simple AH algebra A of traicial rank one, $cel_{CU}(A) = 2\pi$. This is a joint work with Chunguang Li and Ivan Valesques.