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SELF-ADJOINT TRACES ON THE PEDERSEN IDEAL OF C*-ALGEBRAS

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Abstract: In order to circumvent a fundamental issue when studying densely defined traces on C*-algebras – which we refer to as the Trace Question – we initiate a systematic study of the set $T_{\mathbb{R}}(A)$ of self-adjoint traces on the Pedersen ideal of A. The set $T_{\mathbb{R}}(A)$ is a topological vector space with a vector lattice structure, which in the unital setting reflects the Choquet simplex structure of the tracial states. We establish a form of Kadison duality for $T_{\mathbb{R}}(A)$ and compute $T_{\mathbb{R}}(A)$ for principal twisted étale groupoid C*-algebras. We also answer the Trace Question positively for a large class of C*-algebras.

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Key words: trace space, non-unital C*-algebra, Pedersen ideal.

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