

Characterizations of centrality in C^* -algebras via local convexity of functions

By GERGŐ NAGY (Debrecen)

Abstract. In this paper, we give a characterization of central elements in a C^* -algebra \mathcal{A} in terms of a local property of maps on \mathcal{A} given by the functional calculus. We prove that if f denotes one of the functions $x \mapsto \exp(x)$, $x \mapsto x^3$ ($x \in \mathbb{R}$), a self-adjoint element $a \in \mathcal{A}$, which is also positive in the case where f is the latter map, is central if and only if f is locally convex at a .

GERGŐ NAGY
INSTITUTE OF MATHEMATICS
UNIVERSITY OF DEBRECEN
P. O. BOX 400
H-4002 DEBRECEN
HUNGARY
AND
HUN-REN-UD EQUATIONS, FUNCTIONS, CURVES
AND THEIR APPLICATIONS RESEARCH GROUP

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