
Let $X$ be a compact metric space, let $A_1, A_2$ be two closed subalgebras of continuous functions on $X$, containing constants. The authors assume an additional condition in lieu of point separation. For $u \in C(X)$, the paper addresses the question of describing a best approximation to $u$ in $A_1 + A_2$. The description involves the notion of a ‘lightning bolt’ due to D. E. Marshall and A. G. O’Farrell [Fundam. Math. 104, 203–211 (1979; Zbl 0439.41030); J. Funct. Anal. 52, 353–368 (1983; Zbl 0536.46035)].

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MSC:
41A50 Best approximation, Chebyshev systems
41A30 Approximation by other special function classes
41A65 Abstract approximation theory (approximation in normed linear spaces and other abstract spaces)
46E25 Rings and algebras of continuous, differentiable or analytic functions

Keywords:
function algebra; best approximation; lightning bolt; extremal lightning bolt

Full Text: DOI

References:

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