Narang, T. D.
On best simultaneous approximation in metric spaces. (English) Zbl 1059.41008

Summary: C. B. Dunham [Proc. Am. Math. Soc. 18, 472–477 (1967; Zbl 0154.05904)] was the first one who
generalized the classical problem of approximating a continuous function to the problem of simultaneously
approximating two continuous functions by a family of functions defined on closed intervals. This was
followed by J. B. Diaz and H. W. McLaughlin [J. Approximation Theory 6, 68–71 (1972; Zbl 0246.41023)],
W. H. Ling and others, see the paper by B. N. Sahney and S. P. Singh [in: Nonlinear analysis and
17, 523–527 (1974; Zbl 0314.41018)] studied this problem in normed linear spaces. In this paper we study
the problem in metric spaces, i.e., we are concerned with approximating simultaneously any two elements
\(x_1, x_2\) of a metric space \((X, d)\) by elements of a subset \(K\) of \(X\). It is also shown that the problem can be
viewed as the problem of best approximation in a certain product space.

MSC:
41A28 Simultaneous approximation
41A50 Best approximation, Chebyshev systems

Keywords:
best simultaneous approximation; minimizing sequence; convex space