*Dedicated to Professor Yeol Je Cho on the occasion of his retirement*

# On existence of solution of a class of quadratic-integral equations using contraction defined by simulation functions and measure of noncompactness

M. Mursaleen and Reza Arab

**Abstract.**

In this paper we have introduced a new type of contraction condition using a class of simulation functions, in the sequel using the new contraction definition, involving measure of noncompactness; we establish few results on existence of fixed points of continuous functions defined on a subset of Banach space. This result also generalizes other related results obtained in Arab [Arab, R., *Some generalizations of Darbo fixed point theorem and its application*, Miskolc Math. Notes, **18** (2017), No. 2, 595–610], Banaś [Banaś, J. and Goebel, K., *Measures of Noncompactness in Banach Spaces*, Lecture Notes in Pure and Applied Mathematics, Dekker, New York, 60 (1980)]. The obtained results are used in establishing existence theorems for a class of nonlinear quadratic equation (which generalizes several types of fractional-quadratic integral equations such as Abel's integral equation) defined on a closed and bounded subset of $\mathbb{R}$. The existence of solution is established with the aid of a measure of noncompactness defined on function space $C(I)$ introduced in [Banaś, J. and Olszowy, L., *Measures of Noncompactness related to monotonicity*, Comment. Math., **41** (2001), 13–23].

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DEPARTMENT OF MATHEMATICS
ALIGARH MUSLIM UNIVERSITY
ALIGARH, INDIA-202002
*E-mail address*: mursaleenm@gmail.com

DEPARTMENT OF MATHEMATICS
SARI BRANCH, ISLAMIC AZAD UNIVERSITY
SARI, IRAN
*E-mail address*: mathreza.arab@iausari.ac.ir