

**PNN - COCOSO FOR MULTI ATTRIBUTE GROUP
DECISION MAKING**

Surapati Pramanik and Kaushik Sinha Ray*

Nandalal Ghosh B. T. College,
Panpur, Narayanpur, North 24 Parganas, West Bengal, INDIA

E-mail : surapati.math@gmail.com

*Department of Basic Science and Humanities,
Future Institute of Engineering and Management,
Sonarpur, Kolkata, INDIA

E-mail : kaushik.sinha.ray@teamfuture.in

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Abstract: Decision making in real-world situations is highly challenging during evaluation of a set of alternatives with conflicting criteria. Although there exists a vast body of literature covering different Multi-Attribute Decision Making (MADM) frameworks under single or group decision making (MAGDM), most of them are limited to fuzzy or neutrosophic environments capturing limited uncertainty. To address these limitations, this paper proposes an extension of the Combined Compromise Solution (COCOSO) strategy for group decision making within the framework of Pentapartitioned Neutrosophic Numbers (PNNs), which we name as PNN - COCOSO strategy. Unlike classical fuzzy or single-valued neutrosophic approaches, pentapartitioned neutrosophic numbers allow decision makers to distinguish among truth, falsity, contradiction, and ignorance, providing a comprehensive picture of uncertainty in decision making.

Furthermore, this paper utilizes COCOSO's mechanism of multiple compromise measures through a distinguished parameter Ω , combining additive and multiplicative aggregation simultaneously to enhance ranking stability. To illustrate the developed strategy, a benchmark problem of group decision making is selected from