

## Decision-making algorithms based on fuzzy soft sets

Ljubica Mudrić-Staniškovski

*Faculty of Engineering, University of Kragujevac, Sestre Janjić 6, 34000 Kragujevac, Serbia  
e-mail: ljubica.mudric.staniskovski@fink.rs*

Ljubica Djurović

*Faculty of Science, University of Kragujevac, Radoja Domanovića 12, 34000 Kragujevac, Serbia  
e-mail: ljubica.milevic@pmf.kg.ac.rs*

Nenad Stojanović

*Faculty of Science, University of Kragujevac, Radoja Domanovića 12, 34000 Kragujevac, Serbia  
e-mail: nenad.s@kg.ac.rs*

**Abstract.** The theory of soft sets was introduced as a mathematical tool for solving problems containing uncertainty and imprecision, as well as for the simpler representation of data with certain characteristics. Over the past twenty years, the theory of soft sets has evolved in various directions. New operations have been defined, different algorithms have been developed, all with the aim of applying the theory of soft sets in various fields. The concept of a fuzzy soft set has been studied by many, and there are numerous applications because algorithmic methods can be formulated in the theory of fuzzy soft sets, providing very useful conclusions when making decisions. Based on a given fuzzy soft set, certain numerical values can be defined as values that characterize the fuzzy soft set, and based on these values, we can formulate a decision-making algorithm.

**Keywords:** Soft set; Fuzzy soft set; Energy; Decision making.

### References

- [1] M. I. Ali, F. Feng, X. Y. Liu, W. K. Min, M. Shabir. On some new operations in soft set theory. *Computers and Mathematics with Applications*, 2009, 57 (9), 1547 - 1553.
- [2] N. Çağman, S. Enginoglu, F. Citak. Fuzzy Soft Set Theory and Its Applications. *Iranian Journal of Fuzzy Systems*, 2011, 8 (3), 137 - 147.
- [3] F. Feng, J. B. Jun, X. Liu, L. Li. An adjustable approach to fuzzy soft set based decision making. *Journal of Computational and Applied Mathematics*, 2010, 234, 10 - 20.
- [4] I. Gutman. The energy of a graph. *Ber. Math.Statist. Sect. Forschungsz. Graz*, 1978, 103, 1 - 22.
- [5] D. Molodtsov. Soft set theory-first results. *Computers and Mathematics with Applications*, 1999, 37, 19 - 31.
- [6] Mudrić-Staniškovski, Lj. Djurović, N. Stojanović. Energy of a fuzzy soft set and its application in decision-making. *Iranian Journal of Fuzzy Systems*, 2024, DOI:10.22111/ijfs.2024.46797.8243
- [7] A. Sezgin, A. O. Atagun. On operations of soft sets. *Comput. Math. Appl.*, 2011, 61, 1457 - 1467.