

# Linear preservers of the extended majorization relations on $\ell^p(I)$

Martin Ljubenović<sup>1</sup>

<sup>1</sup>University of Niš, Serbia, Faculty of Mechanical Engineering, martinljubenovic@gmail.com,  
martin.ljubenovic@masfak.ni.ac.rs

Linear preservers of the extended majorization relations on the discrete Lebesgue spaces  $\ell^p(I)$ , where  $I$  is an arbitrary non-empty set and  $p \in [1, \infty)$ , are discussed. Necessary and sufficient conditions under which a bounded linear operator on  $\ell^p(I)$  is a linear preserver of the selected majorization relation, are given.

## References

- [1] M. Ljubenović, D.S. Djordjević, Linear preservers of weak majorization on  $\ell^p(I)^+$ , when  $p \in (1, \infty)$ , *Linear Algebra Appl.* **497** (2016), 181–198.
- [2] M. Ljubenović, D.S. Djordjević, Linear preservers of weak majorization on  $\ell^1(I)^+$ , when  $I$  is an infinite set, *Linear Algebra Appl.* **517** (2017), 177–198.
- [3] M. Ljubenović, D. S. Rakić, Submajorization on  $\ell^p(I)^+$  determined by increasable doubly substochastic operators and its linear preservers, *Banach J. Math. Anal.* **15:60** (2021)
- [4] M. Z. Ljubenović, D.S. Rakić, D.S. Djordjević, Linear preservers of DSS-weak majorization on discrete Lebesgue space  $\ell^1(I)$ , when  $I$  is an infinite set, *Linear Multilinear Algebra* **69:14** (2021), 2657–2673.