

**Author:**

Joanna Kończak

**Dissertation title:**

Some properties of Orlicz-Lorentz spaces

**Abstract:**

Herein we discuss some topological and geometrical properties of Orlicz-Lorentz function and sequence spaces equipped with the Orlicz norm. We prove the equality of the Orlicz and Amemiya norms and we consider the problem of attainability of infimum in the case of the second norm. We then show the equivalence of the norm and modular convergence, and introduce a formula for the norm of a characteristic function. Next we present criteria for order continuity, Kadec-Klee property with respect to the local convergence in measure, the existence of order linearly isometric copies of  $l^\infty$ , and monotonicity properties. We also investigate the respective properties for subspaces of order continuous elements. We apply the results to classical Orlicz spaces equipped with the Orlicz norm.

In the subsequent part we study local uniform non-squareness in Orlicz-Lorentz function spaces equipped with the Luxemburg norm. We then show the necessary and sufficient conditions for non-square points. Finally, we present respective corollaries concerning Orlicz spaces equipped with the Luxemburg norm.

Poznań, 15.06.22  
J.Kończak