

Equivalence of $\ell^{\{p_n\}}$ and $\ell^{\{q_n\}}$ norms using asymptotic bounds for $|p_n - q_n|$

Jason R. Morris

The College at Brockport, State University of New York (USA)

`jrmorris@brockport.edu`

Abstract

Given bounded sequences $\{p_n\}$ and $\{q_n\}$ we consider the question of the equivalence of the Banach sequence spaces $\ell^{\{p_n\}}$ and $\ell^{\{q_n\}}$ with variable exponents. We provide conditions involving the rate of convergence of $|p_n - q_n|$ to zero. We discuss the connections with earlier results (especially those in [1]), as well as possible extensions to the variable exponent Lebesgue spaces $L^{p(x)}$ and Sobolev spaces $W^{k, p(x)}$.

References

- [1] Nekvinda, Aleš. Equivalence of $\ell^{\{p_n\}}$ norms and shift operators. *Math. Inequal. Appl.* 5 (2002), no. 4, 711–723.