MAXIMAL FUNCTION ON GENERALIZED LEBESGUE SPACES $L^{p(·)}$

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Abstract. We prove the boundedness of the Hardy–Littlewood maximal function on the generalized Lebesgue space $L^{p(·)}(\mathbb{R}^d)$ under a continuity assumption on $p$ that is weaker than uniform Hölder continuity. We deduce continuity of mollifying sequences and density of $C^\infty(\Omega)$ in $W^{1,p(·)}(\Omega)$.

Key words and phrases: maximal function, generalized Lebesgue spaces, generalized Orlicz spaces, mollifier, electrorheological fluids.

REFERENCES