HARDY AND SOBOLEV INEQUALITIES FOR
DOUBLE PHASE FUNCTIONALS ON THE UNIT BALL

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Abstract. We prove Hardy and Sobolev inequalities for double phase functionals $\Phi(x,t) = t^p + (b(x)t)^q$ on the unit ball $B$, as a continuation of our paper [26], where $1 \leq p < q$, $b(\cdot)$ is non-negative and (radially) Hölder continuous of order $\theta \in (0,1]$. The Sobolev conjugate for $\Phi$ is given by $\Phi^*(x,t) = t^{p^*} + (b(x)t)^{q^*}$, where $p^*$ and $q^*$ denote the Sobolev exponent of $p$ and $q$, respectively, that is, $1/p^* = 1/p - 1/n$ and $1/q^* = 1/q - 1/n$.


Keywords and phrases: Hardy-Sobolev inequality, double phase functionals.

REFERENCES


