

INTERPOLATION INEQUALITIES IN WEIGHTED SOBOLEV SPACES

SERENA BOCCIA AND LOREDANA CASO

Abstract. In this paper we prove some interpolation inequalities between functions and their derivatives in the class of weighted Sobolev spaces defined on unbounded open subset $\Omega \subset \mathbb{R}^n$.

Mathematics subject classification (2000): 26D10, 47A30, 46E30.
Key words and phrases: Interpolation inequalities, weighted spaces.

REFERENCES

- [1] R. A. ADAMS, *Sobolev Spaces*, Academic Press, New York (1975).
- [2] R. C. BROWN AND D. B. HINTON, *Weighted interpolation inequalities and embeddings in \mathbb{R}^n* , *Canad. J. Math.* 42 (1990), 959–980.
- [3] L. CAFFARELLI, R. KOHN AND L. NIRENBERG, *First order interpolation inequalities with weights*, *Compos. Math.* 3 (1984), 259–275.
- [4] L. CASO AND M. TRANSIRICO, *Some remarks on a class of weight functions*, *Comment. Math. Univ. Carolinae* 37 (1996), 469–477.
- [5] E. GAGLIARDO, *Proprietà di alcune classi di funzioni in più variabili*, *Ricerche Mat.* 7 (1958), 102–137.
- [6] A. KOVALEVSKY AND F. NICOLOSI, *A weighted interpolation inequality of the Nirenberg – Gagliardo kind*, *Nonlinear Anal.* 36 (1999), 269–273.
- [7] C. MIRANDA, *Su alcune disuguaglianze integrali*, *Atti Accad. Naz. Lincei Mem. Cl. Sci. Fis. Mat. Natur.* 7 (1963), 1–14.
- [8] L. NIRENBERG, *On elliptic partial differential equations*, *Ann. Scuola Norm. Sup. Pisa*, 13 (1959), 116–162.
- [9] M. TROISI, *Teoremi di inclusione negli spazi di Sobolev con peso*, *Ricerche Mat.* 18 (1969), 177–189.
- [10] M. TROISI, *Su una classe di funzioni peso*, *Rend. Accad. Naz. Sci. XL Mem. Mat.* 10 (1986), 141–152.
- [11] M. TROISI, *Su una classe di spazi di Sobolev con peso*, *Rend. Accad. Naz. Sci. XL Mem. Mat.* 10 (1986), 177–189.