# Interpolation Inequalities in Besov Spaces

T. Ozawa

Department of Mathematics, Hokkaido University
Sapporo 060-0810, Japan

Interpolation inequalities are important to estimate solutions of nonlinear partial differential equations. Those associated with interpolation methods are almost trivial. The Gagliardo-Nirenberg inequalities are now standard. Escobedo and Vega [1] proposed new interpolation inequalities of Gagliardo-Nirenberg type in the study of nonlinear Dirac equations. Their proof breaks down in the endpoint case, while the corresponding limiting inequality reduces Miyakawa's inequalitiy [3], which requires a totally different proof. In this talk I present new interpolation inequalitites in the framework of homogeneous Besov spaces, which reduces those two types as special cases.

## References

[1] M. Escobedo and L. Vega, A semilinear Dirac equation in $H^s(\mathbf{R}^3)$ for $s > 1$, SIAM J. Math. Anal. **28** (1997), 338-362.

[2] S. Machihara and T. Ozawa, Interpolation inequalities in Besov spaces, Proc. Amer. Math. Soc., in press.

[3] T. Miyakawa, On Morrey spaces of measures: Basic properties and potential estimates, Hiroshima Math. J. **20** (1990), 213-222.