Optimal embeddings of spaces of generalized smoothness in the critical case

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The talk is based on a joint work with Susana D. Moura and Júlio S. Neves. We study necessary and sufficient conditions for embeddings of Besov spaces of generalized smoothness $B_{p,q}^{(n/p,\Psi)}(\mathbb{R}^n)$ into generalized Hölder spaces $\Lambda_{\infty,r}^{\mu(\cdot)}(\mathbb{R}^n)$.

In particular, we are able to characterize optimal embeddings for this class of spaces provided $q > 1$. These results improve the embedding assertions given by the continuity envelopes of $B_{p,q}^{(n/p,\Psi)}(\mathbb{R}^n)$, which were obtained recently solving an open problem of Dorothee D. Haroske in the classical setting.

In terms of Triebel-Lizorkin spaces $F_{p,q}^{(n/p,\Psi)}(\mathbb{R}^n)$ we obtain similar results, with the usual replacement of q by p.