

WEBINAR

Grupo de Análise Funcional e Aplicações Functional Analysis and Applications Group

Embeddings of smoothness Morrey spaces on domains

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Abstract

Smoothness Morrey spaces are built upon Morrey spaces $\mathcal{M}_{u,p}(\mathbb{R}^d)$, $0 < p \leq u < \infty$ and its study has been motivated by several applications. This class of function spaces includes not only Besov-Morrey spaces $\mathcal{N}_{u,p,q}^s(\mathbb{R}^d)$ and Triebel-Lizorkin-Morrey spaces $\mathcal{E}_{u,p,q}^s(\mathbb{R}^d)$ with $0 < p \leq u < \infty$, $0 < q \leq \infty$, $s \in \mathbb{R}$, but also Besov-type spaces $B_{p,q}^{s,\tau}(\mathbb{R}^d)$ and Triebel-Lizorkin-type spaces $F_{p,q}^{s,\tau}(\mathbb{R}^d)$, with $0 < p < \infty$, $0 < q \leq \infty$, $\tau \geq 0$, $s \in \mathbb{R}$. Although these scales are defined in different ways, they share some properties and are related to each other by a number of embeddings and coincidences. For instance, they both include the classical spaces of type $B_{p,q}^s(\mathbb{R}^d)$ and $F_{p,q}^s(\mathbb{R}^d)$ as special cases.

In this talk, embeddings of Besov-type and Triebel-Lizorkin-type spaces,

$$\text{id}_\tau: B_{p_1,q_1}^{s_1,\tau_1}(\Omega) \hookrightarrow B_{p_2,q_2}^{s_2,\tau_2}(\Omega) \quad \text{and} \quad \text{id}_\tau: F_{p_1,q_1}^{s_1,\tau_1}(\Omega) \hookrightarrow F_{p_2,q_2}^{s_2,\tau_2}(\Omega),$$

where $\Omega \subset \mathbb{R}^d$ is a bounded domain, are studied. Namely, we present necessary and sufficient conditions for the continuity and compactness of id_τ .

This talk is based on a joint work with D. D. Haroske and L. Skrzypczak.

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