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Cocompactness and profile decompositions in Besov and Triebel-Lizorkin-spaces

Bounded sequences in Banach spaces equipped with a group of linear isometries, under general conditions, have subsequences that admit an asymptotically orthogonal decomposition, known as profile decomposition. Cocompactness of an embedding is a property of an embedding, similar to but weaker than compactness, that guarantees vanishing of the remainder in the profile decomposition in the target space. The talk will focus on cocompact embeddings of Besov and Triebel-Lizorkin spaces and convergence of the remainder in corresponding profile decompositions. The latter involves the question when weak convergence $f_n \rightharpoonup f$ coincides with Delta-convergence $\forall g, d(f_n, f) \leq d(f_n, g) + o(1)$, which is a form of Opial's condition.
The talk will highlight defects of compactness arising with respect to groups of isometries other than actions of translations and dilations, such as isometries on manifolds, logarithmic dilations in relation to Moser-Trudinger inequality and affine transformations in relation to the affine Sobolev inequality of G.-Y.Zhang.