# Extrapolation: Recent results and challenges

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Our concern will lie with function spaces occuring in the extrapolation theory and their amenable description. We shall recall several typical situations, illustrating the natural occurence of extrapolation phenomenon for (sub)linear operators and function spaces in analysis as behaviour of classical operators of harmonic analysis, critical imbeddings of Sobolev type spaces etc. In more details we shall tackle recent results on extrapolation of subadditive operators in Lebesgue and Lorentz spaces near $L_1$, decomposition of non-increasing rearrangements and correspondence with sequence spaces. We shall present theorems of Yano type in Lebesgue spaces near $L_p$ with a general $p \in (1, \infty)$, and consider employment of various scales of function spaces (specifically, the small Lebesgue spaces). Some of the current problems will be mentioned.

Some related recent references:

D. E. Edmunds and M. Krbec: *Variations on Yano's extrapolation theorem.* Rev. Mat. Complut. 18(2005), 111-118.

M. Krbec and H.-J. Schmeisser: *Refined limiting imbeddings for Sobolev spaces of vector-valued functions.* J. Funct. Anal. 227(2005), 372–388.

C. Capone, A. Fiorenza and M. Krbec: *On extrapolation blowups in the $L_p$ scale.* To appear in J. Inequal. Appl. in 2006.