

# LIMITING REAL INTERPOLATION SPACES FOR GENERAL COUPLES

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**Abstract.** Let  $A_0$  and  $A_1$  be Banach spaces with  $A_0 \hookrightarrow A_1$ . Motivated by problems in function spaces, several authors have studied the limiting real interpolation spaces  $(A_0, A_1)_{\theta, q}$  where  $\theta = 0$  or  $1$ . These extreme spaces are related with extrapolation spaces and they arise interpolating the diagonally equal 4-tuple  $(A_0, A_1, A_1, A_0)$  by the  $K$ - and  $J$ -method associated to the unit square.

Assumption  $A_0 \hookrightarrow A_1$  is natural in many applications but from the point of view of interpolation theory, it is a restriction. Accordingly, in this talk we study limiting real interpolation spaces for arbitrary couples. We also show their connection with the interpolation methods defined by the unit square.

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