Samuel Nicolay
University of Liege, Belgium

Functional spaces defined via Boyd functions

In this work, we present several generalized functional spaces, primarily the T_u^p spaces, originally introduced in essence by Calderón and Zygmund through the lens of Boyd functions. We provide conditions that relate functions belonging to these spaces with their wavelet coefficients. Subsequently, we propose a multifractal formalism based on these spaces, which generalizes the so-called wavelet leaders method, and demonstrate that it holds on a prevalent set. We also consider potential applications to partial differential equations.