

A Fourier analytic approach of integration

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Abstract

In 1961, Ciesielski established a remarkable isomorphism of spaces of Hölder continuous functions and Banach spaces of real valued sequences. This isomorphism leads to wavelet decompositions of Gaussian processes giving access for instance to a precise study of their large deviations, as shown by Baldi and Roynette. We will use Schauder representations for a pathwise approach of integration, along Ciesielski's isomorphism. It can be formulated in terms of dyadic martingales and Rademacher functions. In a more general and analytical setting, this pathwise approach of rough path analysis can be understood in terms of Paley-Littlewood decompositions of distributions, and Bony para-products in Besov spaces. This talk is based on joint work with M. Gubinelli and N. Perkowski (U Paris-Dauphine).