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LEBESGUE MEASURE ON BANACH SPACE

We first develop a regular σ -finite version of Lebesgue measure on \mathbb{R}^∞ , which generates a restriction to every separable Banach space with a Schauder basis. We show that the maximal translation invariant subspace is ℓ_1 and the maximal rotation invariant subspace is ℓ_2 . I will also show the Pontryagin duality theory can be extended to all uniformly convex separable Banach spaces with a basis. In another direction,, I will provide an interesting approach to the diffusion equation in infinitely many variables, which also works for the Ornstein-Uhlenbeck equation.

Mathematical Reviews subject classification: Primary: ; Secondary:
Key words: ,