

On the Lebesgue space of vector measures

Abstract The Bochner integral, the integral of vector valued functions with respect to a measure, is well known. What if we integrate scalar functions with respect to a vector measure? In this talk we consider the Lebesgue space $L^1(G)$ of scalar functions which are integrable with respect to a vector measure G in the sense of D. R. Lewis. First, we investigate simpler conditions on a scalarly integrable function f that guarantee $f \in L^1(G)$. Next, when a new vector measure F is obtained via the integral $F(E) = \int_E f dG$, we show that certain properties of the vector measure G are inherited to F ; for instance, relative compactness or convexity of the range of vector measures. Along the presentation some of basic properties of vector measures will be explained.