

The Nikodym and Absolute Summability Properties

Christopher Stuart

Department of Mathematical Sciences

New Mexico State University

Las Cruces, New Mexico, 88003 USA

cstuart@nmsu.edu

The Nikodym Boundedness Theorem is a fundamental result in functional analysis and vector measures. It is also closely related to the Hahn Property recently introduced by Bennett, Boos, and Leiger. The original Nikodym Boundedness Theorem states that a pointwise bounded family of finitely-additive measures defined on a sigma-algebra of sets is uniformly bounded. The sigma-algebra assumption has been weakened by many authors to include rings and algebras of sets more general than sigma-algebras. In this talk, two more generalizations of the Nikodym Boundedness Theorem will be presented, and examples of rings of sets to which these new theorems apply will be given. Such rings are said to have the Nikodym Property.

In addition to this, a recent result concerning an internal property of a ring of sets that implies the Absolute Summability Property (ASP) will be presented and examples of collections of subsets of the natural numbers to which it applies will be shown.