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Abstract BMO Measure Spaces

Since BMO spaces were introduced by John and Nirenberg, they have been widely developed over spaces other than the Euclidean space, for example Manifolds or spaces of homogeneous type. The goal of this work is to study a very general BMO type space, with conditions imposed only on the measure and on the cover replacing balls. In this setting, assuming only a positive, strictly localizable measure, finite and non-zero on the chosen cover sets, necessary and sufficient conditions were found for this BMO space to be a Banach Space. These conditions are related to the cover sets only and don't require further restriction on the measure itself. Furthermore, other properties of the original BMO space were found to still hold in this setting.