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A Covering Lemma in the Theory of Differentiation of Integrals

We will explore the interplay between geometric maximal functions and covering lemmas. Motivated by the work of A. Córdoba and R. Fefferman, we will discuss a necessary and sufficient covering condition on a basis that yields a weak-type estimate for the associated maximal operator. This is joint work with Paul Hagelstein and Fedor Nazarov.