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*Current developments in the theory of differentiation of integrals*

We will provide an overview of current developments in the theory of differentiation of integrals. Particular emphasis will be placed on a recent result, extending prior work of Bateman and Katz, that provides a condition on directional maximal operators on  $\mathbb{R}^2$  sufficient to ensure that they are unbounded on  $L^p(\mathbb{R}^2)$  for  $1 \leq p < \infty$ . This recent work is joint with Blanca Radillo-Murguía and Alex Stokolos.