Hytönen, Tuomas (University of Helsinki, Finland)

Of commutators and Jacobians

Abstract: The L^p boundedness of commutators $[b,T] = bT - Tb$ of pointwise multiplication b and singular integral operators T has been well studied for a long time. There are also many results about L^p to L^q boundedness for $p < q$, but almost nothing for $p > q$. I will supply the missing pieces to present a complete picture of the L^p to L^q boundedness for all $p, q \in (1, \infty)$, and relate the regime of exponents $p > q$ to the mapping properties of the Jacobian on first order Sobolev spaces.