Singular Integral operators, commutators and weights: some recent progress

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Abstract. It is well known that the basic operators from Harmonic Analysis are bounded on weighted $L^p$ spaces when the weight satisfies the $A_p$ condition. There is a lot of interest in understanding the behavior of the operator norm in terms of the $A_p$ constant of the weight. In this expository lecture we plan to describe some recent progress on these and related questions for Singular Integral operators like Calderón-Zygmund operators and their commutators with $BMO$ functions.