Some Maximal Operators Related to Calderón-Zygmund Singular Integrals

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In this talk, we shall go over recent works concerning some maximal operators related to families of homogeneous singular integral operators. Establishing L^p estimates of such maximal operators when their kernels are rough in $L(\log L)^{1/2}(\mathbf{S}^{n-1})$ will be the main concern of this talk. A systematic procedure for establishing the L^p estimates will be presented. Moreover, we show that the imposed size condition on the kernels is optimal. Finally, we shall highlight some applications of the obtained results.