

BOUNDEDNESS AND CONCENTRATION OF RANDOM SINGULAR
INTEGRALS DEFINED BY WAVELET SUMMABILITY KERNELS

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ABSTRACT. We use Cramér-Chernoff type estimates in order to study the Calderón-Zygmund structure of the kernels $\sum_{I \in \mathcal{D}} a_I(\omega) \psi_I(x) \psi_I(y)$ where a_I are subgaussian independent random variables and $\{\psi_I : I \in \mathcal{D}\}$ is a wavelet basis where \mathcal{D} are the dyadic intervals in \mathbb{R} . We consider both, the cases of standard smooth wavelets and the case of the Haar wavelet.