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Statistics of the Stability Bounds in the Phase Retrieval Problem. Preliminary report.

In this talk we present estimates of the tail-bound for the distribution of the Lipschitz constants in the phase retrieval problem. Specifically it is known that if the frame $\{f_1, \dots, f_m\}$ for C^n is phase retrievable then there are constants a_0 and b_0 so that for every $x, y \in C^n$:

$$a_0 \|xx^* - yy^*\|_1^2 \leq \sum_{k=1}^m \left| \langle x, f_k \rangle^2 - \langle y, f_k \rangle^2 \right|^2 \leq b_0 \|xx^* - yy^*\|_1^2.$$

Assume f_1, \dots, f_m are independent realizations with entries from $CN(0, 1)$. In this talk we establish estimates for the probability $P(a_0 > a)$. (Received August 15, 2016)