

Title: *On restriction of Fourier transforms.*

Abstract: Hardy and Littlewood observed that L^p -spaces on the torus have the majorant property if p is a positive even integer. For $p > 2$ not an even integer it is known that the majorant property fails to hold. We will discuss a linearized variant of the majorant problem which relates it to *local* restriction problems for Fourier series with frequency set in $[0, N]$. For a *random* selection of frequency sets E_ω in $[0, N]$ of size $N^a, 0 < a < 1$, we show that the events

$$\sup_{|a_n| \leq 1} \left\| \sum_{n \in E_\omega} a_n e^{2\pi i n x} \right\|_p \leq C_N \left\| \sum_{n \in E_\omega} e^{2\pi i n x} \right\|_p$$

have probability that tends to 1 as $N \rightarrow \infty$ if C_N is allowed to grow logarithmically in N . However, for certain frequency sets E in $[0, N]$ we will show that above estimate fails by a positive power in N .