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Dennis Nemzer* (jclarke@csustan.edu), Department of Mathematics, California State University, Stanislaus, 801 W. Monte Vista Ave, Turlock, CA 95382. *Fourier Series Vanishing on an Interval*. Preliminary report.

Let $\{\alpha_n\}$ be a sequence of complex numbers such that $\sum_{-\infty}^{\infty} |\alpha_n|^2 < \infty$. We give necessary and sufficient conditions for $\lim_{n \rightarrow \infty} \sum_{k=-n}^n \alpha_k e^{ikx} = 0$ almost everywhere on some open interval. Some examples will be given. (Received August 18, 2007)