1059-42-59 **Fedor Nazarov**, **Richard Oberlin** and **Christoph Thiele*** (thiele@math.ucla.edu). *A multi-frequency Calderon Zygmund decomposition and applications.* Preliminary report.

We introduce a Calderon Zygmund decomposition both in the dyadic (trivial) and non-dyadic (less trivial) setting, where the bad function has vanishing integral against a number of pure frequencies. We present applications of this Calderon Zygmund decomposition to an extension of a multi-freqeuncy maximal lemma of Bourgain (non-dyadic) and to new uniform bounds for a dyadic model of the bilinear Hilbert transform. (Received February 12, 2010)