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Gong Guang* (ggong@uwaterloo.ca), Department of Electrical and Computer Eng., University of Waterloo, Waterloo, Ontario N2L 3G1, and **Zilong Wang**. *Polyphase Sequence Families with Low Correlation from the Bounds of Character Sums*. Preliminary report.

There are three classes of polyphase sequence families with low correlation constructed from characters and their correlation functions are upper bounded by directly applying the known bounds of character sums. The first class is constructed using additive characters of finite field $GF(q)$ and the examples include Chu (or Alltop) sequences, and m -sequences. The second class is from multiplicative characters of $GF(q)$, for example, power residue and Sidelnikov sequences are those constructions. The third class is from the combination of additive and multiplicative characters, such as the sequences from the Weil representation. In this talk, those constructions as well as the sequence families constructed from the shift and addition of those sequences will be revisited and some new constructions will be given. (Received September 22, 2009)