

**Meeting:** 1001, Evanston, Illinois, SS 5A, Special Session on Codes and Applications

1001-05-27            **Tom Blackford\*** (JT-Blackford@wiu.edu), Department of Mathematics, Western Illinois University, Macomb, IL 61455. *Negacyclic Duadic Codes*. Preliminary report.

Duadic codes are cyclic codes that are generalizations of quadratic residue codes. They have many interesting properties, including the fact that there are special relationships between their duals, and some of them may be extended to form self-dual codes. We will introduce a class of negacyclic codes that are duadic in a similar sense. We will review which negacyclic codes are self-dual (via a Discrete Fourier Transform description) and show that in some cases where no self-dual codes exist, duadic codes can be found. In particular, we will show a class of negacyclic duadic codes of length  $2p$  (where  $p$  is an odd prime) which can be doubly extended in a certain way to create self-dual codes of length  $2p + 2$ . (Received June 30, 2004)