

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

1001-94-39 **Keith E. Mellinger*** (kmelling@umw.edu), Department of Mathematics, University of Mary Washington, 1301 College Avenue, Trinkle Hall, Fredericksburg, VA 22401-5358, and **Amanda Passmore** and **Jennifer Stovall**. *LDPC codes obtained from quadratic surfaces of finite projective spaces*. Preliminary report.

We study incidence structures of points and lines in finite projective spaces along with their corresponding bipartite incidence graphs and associated binary linear codes. The incidence structures are weak, forming at most an (α, β) -geometry. In the first construction, we can prove many properties of the code, yet show by simulation that their performance is not exemplary. In another construction, we obtain a much more complicated structure in which we can prove very little, yet the code seems to perform slightly better under simulation. We provide a few mathematical properties of these codes as well as simulation results. (Received July 22, 2004)