

1086-00-790

Ashley Klahr* (aklahr@sandiego.edu), **Elaina Aceves** and **David Heywood**. *Embedding Cycles and Bipartite Graphs in $PG(n, q)$* . Preliminary report.

Our work builds from that of Lazebnik, Mellinger, and Vega about the embedding of graphs in finite projective planes. First, we expand on their findings on embedding cycles in $PG(2, q)$ by taking cycles in 2 dimensions and piecing them together to get a cycle in three dimensions. Then similarly we piece together cycles in $n - 1$ dimensions to get a cycle in n dimensions. Additionally, we expand their findings on embedding bipartite graphs in $PG(2, q)$ by looking at bounds for complete bipartite graphs that can be embedded in $PG(3, q)$. (Received September 12, 2012)