**ELA**

# SPACES OF CONSTANT RANK MATRICES OVER $GF(2)^*$

NIGEL  BOSTON$^\dagger$

**Abstract.** For each $n$, we consider whether there exists an $(n+1)$-dimensional space of $n$ by $n$ matrices over $GF(2)$ in which each nonzero matrix has rank $n-1$. Examples are given for $n = 3, 4$, and 5, together with evidence for the conjecture that none exist for $n > 8$.

**Key words.** Constant rank, Matrices, Heuristics.

**AMS subject classifications.** 15A03, 15-04.