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**Rachelle M Ankney\*** (rmankney@bellatlantic.net), Department of Mathematics, George Washington University, Washington, DC 20052. *Exploring the Bose-Burton Geometries.*

The matroid  $PG(n-1, q) \setminus PG(k-1, q)$  arises as an extremal example in the Bose-Burton Theorem of 1966. We show that this matroid  $PG(n-1, q) \setminus PG(k-1, q)$ , for  $n \geq 4$  and  $1 \leq k \leq n-2$ , is characterized by a variety of numerical and polynomial invariants. In particular, although non-isomorphic matroids may have the same Tutte polynomial, we show that any matroid that has the same Tutte polynomial as  $PG(n-1, q) \setminus PG(k-1, q)$  is isomorphic to  $PG(n-1, q) \setminus PG(k-1, q)$ . (Received September 22, 2000)