The $B$-Orbits on a Hermitian Symmetric Variety in Characteristic 2

Let $G$ be a reductive linear algebraic group over an algebraically closed field $K$ of characteristic 2. Fix a parabolic subgroup $P$ such that the corresponding parabolic subgroup over $\mathbb{C}$ has abelian unipotent radical and fix a Levi subgroup $L \subseteq P$. We parametrize the orbits of a Borel $B \subseteq P$ over the Hermitian symmetric variety $G/L$ supposing the root system $\Phi$ is irreducible. For $\Phi$ simply laced we prove a combinatorial characterization of the Bruhat order over these orbits. We also prove a formula to compute the dimension of the orbits from combinatorial characteristics of their representatives.

Keywords: Flag variety, Bruhat order, dimension formula.

MSC: 14M15.