

1048-08-320

Farrah Jackson Chandler* (fjchandler@mail.ecsu.edu), 1704 Weeksvill Road, Campus Box 951, Elizabeth City, NC 27909. *Classification of k -involutions of $SP(2n, k)$.*

Symmetric spaces defined over a field k of characteristic not 2 are completely characterized by the k -involution of the corresponding reductive group. A first characterization of the isomorphism classes of k -involutions for reductive algebraic groups defined over a field k of characteristic not 2 was given by Helminck in 2000 using 3 invariants. Two of these 3 invariants are difficult to classify. In this paper we consider the group $SP(n, k)$ and give a different and much more detailed characterization of the isomorphism classes of k -involutions for this group. For this we first show that each involution of $SP(n, k)$ is the restriction of an involution of $SL(n, k)$. Next we determine which involutions of $SL(2n, k)$ remain involutions when restricted to $SP(2n, k)$. To complete the classification for a specific base field it remains to determine in how many $SP(2n, k)$ -isomorphy classes one $SP(2n, k)$ -isomorphy class of such a k -involution of $SL(2n, k)$ splits. (Received February 10, 2009)