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John D Hutchens* (jdhutche@ncsu.edu), North Carolina State University, Box 8205, Raleigh, NC 27695. *k-involutions of Exceptional Linear Algebraic Groups*. Preliminary report.

Symmetric spaces have been studied for their role in Lie groups and algebraic groups. They can be defined as the homogeneous spaces G/K where G is a reductive algebraic group and K maximal compact subgroup, which is also the fixed point group of an involution. Generalizations of symmetric spaces arise in many areas and are often called symmetric k -varieties. A symmetric k -variety is defined as the quotient G_k/H_k , where G is an algebraic group defined over a field k , $H = G^\theta$ is the fixed point group of a k -involution θ of G and G_k and H_k are the k -rational points of G and H . For every isomorphy class of k -involutions we get an isomorphy class of symmetric k -varieties. These have been classified for some algebraic groups of types A , B , C , and D . In this talk we discuss some recent results about the classification of k -involutions for exceptional groups. (Received September 22, 2012)