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**Stacy L. Beun\*** (slrahber@unity.ncsu.edu), Department of Mathematics, Box 8205, North Carolina State University, Raleigh, NC 27695, and **Aloysius G. Helminck**. *On the classification of orbits of minimal parabolic  $k$ -subgroups acting on symmetric  $k$ -varieties of  $SL(n, k)$ .*

Symmetric  $k$ -varieties are a generalization of symmetric spaces to general fields. They play an important role in many areas, including representation theory, geometry, and singularity theory. Orbits of a minimal parabolic  $k$ -subgroup acting on a symmetric  $k$ -variety is essential to the study of symmetric  $k$ -varieties and their representations. For reductive algebraic groups defined over algebraically closed fields or the real numbers, these orbits have been studied in great detail in the literature. For general fields, Helminck and Wang gave several characterizations of these orbits. However, a classification for specific fields is still needed and is, in fact, quite complicated. These various characterizations of the orbits require one to first classify the orbits of the  $\theta$ -stable maximal  $k$ -split tori under the action of the  $k$ -points of the fixed point group, where  $\theta$  is the defining involution of the symmetric  $k$ -variety. In this talk, we present the classification of these orbits for the group  $SL(n, k)$ . We discuss methods and results for a number of base fields  $k$ , including finite fields and the  $\mathfrak{p}$ -adic numbers. (Received September 07, 2007)