

**Meeting:** 1003, Atlanta, Georgia, SS 23A, AMS Special Session on Representations of Lie Algebras, I

1003-17-112      **Mohammad Q Hailat\*** (hailat@just.edu.jo), Dean of Science and Arts, Jordan University of science and Technology, Irbid, Jordan. *On The Classification of rank 2 rootsystems Over Fields of Low characteristics.* Preliminary report.

Rootsystems play an important role in classifying Lie algebra over fields of characteristic 0. A k-rootsystem is a general concept of rootsystem that was introduced to study the structure of some Lie algebras over fields of characteristic P, namely the so-called Symmetric Lie algebra. Any given rootsystem has exactly four types of roots: Black ( $B = A_1$ ), Grey ( $G = \tilde{A}$ ), White ( $W = Z_p$ ) and Red ( $R = K_1$ ). The strategy for classifying the k-rootsystems is to break these systems up into components based on the colors of the roots in the system. Lie rootsystems (k-rootsystems, under certain conditions, having only white or black roots) appear as the rootsystems of the symmetric Lie algebras. The root system in which all roots are White or Red is called Dual Lie rootsystem. The classification of ranks 1, 2 and 3 of Lie rootsystems plays an important role in the classification of rootsystems of symmetric Lie algebras. In this paper, we complete the classification of rank 2 k-rootsystems over fields of characteristic 11 by studying the last case in which all roots are red. We show that rank 2 dual Lie rootsystems over a field of characteristic 11, up to isomorphism, are:  $W_1 \vee W_1$ ,  $W_1 \vee K_1$ ,  $K_1 \vee K_1$ ,  $W_1 \oplus K_1$ ,  $W_1$  and  $K_2$ . (Received August 08, 2004)