

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

1003-17-178 **W. Harold Davenport*** (davenport@mesastate.edu), Computer Science, Mathematics, Stat Dept, Mesa State College, 1100 North Avenue, Grand Junction, CO 81501-3122. *Cayley-Dickson algebras, Lie theory and Arithmetic*. Preliminary report.

Algebras obtained by the Cayley-Dickson process are called Cayley-Dickson algebras. The Cayley-Dickson process gives a sequence of algebras $A(m)$ for $m=0,1,2,3,\dots$. The theory of the first 4 algebras in this sequence has a rich history. The automorphism group of these algebras, the Lie algebra of this group and the derivation algebra of the automorphism will be discussed. Some Lie theory structure of the quaternions will be given. The arithmetic of these algebras will also be discussed. (Received August 18, 2004)