

Meeting: 1003, Atlanta, Georgia, SS 8A, AMS Special Session on Modular Representation Theory of Finite and Algebraic Groups, I

1003-20-1503 **Stephen M Gagola III*** (gagolast@msu.edu), Michigan State University, Department of Mathematics, East Lansing, MI 48824. *Subloops of the unit octonions.*

A composition algebra over some field F , not necessarily finite, is an algebra with a non-degenerate quadratic form, q , satisfying $q(uv)=q(u)q(v)$. If its dimension over the field is eight then we have an octonion algebra. Here we categorize all the subloops of the unit octonions and in particular describe all the finite maximal subloops by using the triality groups and the reflection groups of these Moufang loops. Furthermore, Lagrange's Theorem for Moufang loops then follows as a corollary. (Received October 05, 2004)