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**Stephen M Gagola III\*** (sgagola@math.arizona.edu), Department of Mathematics, The University of Arizona, 617 N. Santa Rita Ave, Tucson, AZ 85721. *The development of Sylow  $p$ -subloops in finite Moufang loops.*

The split octonion algebras are always nonassociative but do satisfy a weak form of the associative law, namely the Moufang identity. A Moufang loop is a generalization of a group that satisfies the Moufang identity. All finite nonassociative simple Moufang loops are Paige loops, namely, the set of unit norm split-octonions modulo the center. We prove that if  $L$  is a finite Moufang loop and  $p$  is a “Sylow prime” for  $L$  then every  $p$ -subloop of  $L$  is contained in a Sylow  $p$ -subloop of  $L$ . Here  $p$  is a Sylow prime for  $L$  if  $p \nmid \frac{q^2+1}{\gcd(q+1,2)}$  for all  $q$  for which a composition factor of  $L$  is isomorphic to the Paige loop  $P(q)$ . (Received September 16, 2008)