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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)