Title: C-loops: An introduction

Author(s): J. D. Phillips and Petr Vojtěchovský

C-loops are loops satisfying $x(y(yz)) = ((xy)y)z$. They often behave analogously to Moufang loops and they are closely related to Steiner triple systems and combinatorics. We initiate the study of C-loops by proving: (i) Steiner loops are C-loops, (ii) C-loops are alternative, inverse property loops with squares in the nucleus, (iii) the nucleus of a C-loop is a normal subgroup, (iv) C-loops modulo their nucleus are Steiner loops, (v) C-loops are power associative, power alternative but not necessarily diassociative, (vi) torsion commutative C-loops are products of torsion abelian groups and torsion commutative 2-C-loops; and several other results. We also give examples of the smallest nonassociative C-loops, and explore the analogy between commutative C-loops and commutative Moufang loops.

Address:
J. D. Phillips
Department of Mathematics & Computer Science
Wabash College
Crawfordsville, Indiana 47933
USA
E-mail: phillipj@wabash.edu

Address:
Petr Vojtěchovský
Department of Mathematics
University of Denver
2360 S Gaylord St, Denver, CO, 80208
USA
E-mail: petr@math.du.edu