

Andrew Wells

Moufang loops arising from Zorn vector matrix algebras

Comment.Math.Univ.Carolin. 51,2 (2010) 371–388.

Abstract: In *A class of simple Moufang loops*, Proc. Amer. Math. Soc. **7** (1956), 471–482, Paige used the vector matrix construction over fields to produce simple Moufang loops. The purpose of this paper is to generalize the construction to the class of commutative rings, and examine the Moufang loops arising in this fashion. Specific attention is paid to the construction over the ring of integers modulo four.

Keywords: Zorn vector matrix, Moufang loop, Paige loop

AMS Subject Classification: 20N05

REFERENCES

- [1] Bruck R.H., Kleinfeld E., *The structure of alternative division rings*, Proc. Nat. Acad. Sci. U.S.A. **37** (1951), 88–90; MR0041834 (13,8c).
- [2] Chein O., *Moufang loops of small order. I*, Trans. Amer. Math. Soc. **188** (1974), 31–51; MR0330336 (48 #8673).
- [3] Liebeck M.W., *The classification of finite simple Moufang loops*, Math. Proc. Cambridge Philos. Soc. **102** (1987), no. 1, 33–47; MR886433 (88g:20146).
- [4] Merlini Giuliani M.L., Polcino Milies C., *The smallest simple Moufang loop*, J. Algebra **320** (2008), no. 3, 961–979; MR2427625 (2009e:20145).
- [5] Moufang R., *Zur Struktur von Alternativkörpern*, Math. Ann. **110** (1935), no. 1, 416–430; MR1512948.
- [6] Paige L.J., *A class of simple Moufang loops*, Proc. Amer. Math. Soc. **7** (1956), 471–482; MR0079596 (18,110f).
- [7] Vojtěchovský P., *Investigation of subalgebra lattices by means of Hasse constants*, Algebra Universalis **50** (2003), no. 1, 7–26; MR2026823 (2004j:20128).