

V.A. Shcherbacov, D.I. Pushkashu
On the structure of finite paramedial quasigroups

Comment.Math.Univ.Carolin. 51,2 (2010) 357–370.

Abstract: Information on the structure of finite paramedial quasigroups, including a classification of finite simple paramedial quasigroups, is given. The problem “Classify the finite simple paramedial quasigroups” was posed by J. Ježek and T. Kepka at the conference LOOPS’03, Prague 2003.

Keywords: quasigroup, paramedial quasigroup, medial quasigroup, simple quasigroup, idempotent

AMS Subject Classification: 20N05

REFERENCES

- [1] Bates G.E., Kiokeemeister F., *A note on homomorphic mappings of quasigroups into multiplicative systems*, Bull. Amer. Math. Soc. **54** (1948), 1180–1185.
- [2] Belousov V.D., *Balanced identities on quasigroups*, Mat. Sb. **70** (1966), 55–97 (in Russian).
- [3] Belousov V.D., *Foundations of the Theory of Quasigroups and Loops*, Nauka, Moscow, 1967 (in Russian).
- [4] Belousov V.D., *Elements of Quasigroup Theory: A Special Course*, Kishinev State University Printing House, Kishinev, 1981 (in Russian).
- [5] Belyavskaya G.B., *Direct decompositions of quasigroups*, Mat. Issled. **95** (1987), 23–38 (in Russian).
- [6] Belyavskaya G.B., *T-quasigroups and the center of a quasigroup*, Mat. Issled. **111** (1989), 24–43 (in Russian).
- [7] Belyavskaya G.B., *Full direct decompositions of quasigroups with an idempotent element*, Mat. Issled. **113** (1990), 21–36 (in Russian).
- [8] Belyavskaya G.B., Tabarov A.Kh., *One-sided T-quasigroups and irreducible balanced identities*, Quasigroups Related Systems **1** (1994), 8–21.
- [9] Bruck R.H., *A Survey of Binary Systems*, third printing, corrected edition, Springer, New York, 1971.
- [10] Burris S., Sankappanavar H.P., *A Course in Universal Algebra*, Springer, New York-Berlin, 1981.
- [11] Cohn P.M., *Universal Algebra*, Harper & Row, New York, 1965.
- [12] Hall M., *The Theory of Groups*, The Macmillan Co., New York, 1959.
- [13] Herstein I.N., *Abstract Algebra*, second edition, Macmillan Publishing Company, New York, 1990.
- [14] Ježek J., *Normal subsets of quasigroups*, Comment. Math. Univ. Carolin. **16** (1975), no. 1, 77–85.
- [15] Ježek J., Kepka T., *Varieties of abelian quasigroups*, Czechoslovak Math. J. **27** (1977), 473–503.
- [16] Kargapolov M.I., Merzlyakov M.Yu., *Foundations of Group Theory*, Nauka, Moscow, 1977 (in Russian).
- [17] Kepka T., Němcová P., *T-quasigroups, II*, Acta Univ. Carolin. Math. Phys. **12** (1971), no. 2, 31–49.
- [18] Kostrikin A.I., *Introduction in Algebra*, Nauka, Moscow, 1977 (in Russian).
- [19] Mal’tsev A.I., *On the general theory of algebraic systems*, Mat. Sb. **35** (77) (1954), no. 1, 3–20 (in Russian).
- [20] Murdoch D.C., *Structure of abelian quasigroups*, Trans. Amer. Math. Soc. **49** (1941), 392–409.
- [21] Němcová P., Kepka T., *T-quasigroups, I*, Acta Univ. Carolin. Math. Phys. **12** (1971), no. 1, 39–49.
- [22] Pflugfelder H.O., *Quasigroups and Loops: Introduction*, Heldermann, Berlin, 1990.
- [23] Shcherbacov V.A., *On automorphism groups and congruences of quasigroups*, PhD Thesis, Institute of Mathematics, Academy of Sciences of Republic Moldova, 1991 (in Russian).

- [24] Shcherbacov V.A., *On linear quasigroups and their automorphism groups*, Mat. Issled. **120** (1991), 104–113 (in Russian).
- [25] Shcherbacov V.A., *On Bruck-Belousov problem*, Bul. Acad. Stiinte Repub. Mold. Mat. 2005, no. 3, 123–140.
- [26] Shcherbacov V.A., *On structure of finite n-ary medial quasigroups and automorphism groups of these quasigroups*, Quasigroups Related Systems **13** (2005), no. 1, 125–156.
- [27] Shcherbacov V.A., *On the structure of finite medial quasigroups*, Bul. Acad. Stiinte Repub. Mold. Mat. 2005, no. 1, 11–18.
- [28] Shcherbacov V.A., *On the structure of left and right F-, SM- and E-quasigroups*, <http://arxiv.org/>, arXiv:0811.1725:67 pages, 2008.
- [29] Shcherbacov V.A., *On the structure of left and right F-, SM- and E-quasigroups*, J. Gen. Lie Theory Appl. **3** (2009), no. 3, 197–259.
- [30] Smith J.D.H., *Mal'cev Varieties*, Lecture Notes in Mathematics, 554, Springer, New York, 1976.
- [31] Smith J.D.H., *An Introduction to Quasigroups and Their Representation*, Studies in Advanced Mathematics, Chapman and Hall/CRC, London, 2007.
- [32] Syrbu P.N., *On congruences on n-ary T-quasigroups*, Quasigroups Related Systems **6** (1999), 71–80.
- [33] Toyoda K., *On axioms of linear functions*, Proc. Imp. Acad. Tokyo **17** (1941), 221–227.
- [34] Wikipedia. Problems in loop theory and quasigroup theory, 2004, <http://en.wikipedia.org/wiki>.