J.I. Hall

On Mikheev's construction of enveloping groups

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Abstract: Mikheev, starting from a Moufang loop, constructed a groupoid and reported that this groupoid is in fact a group which, in an appropriate sense, is universal with respect to enveloping the Moufang loop. Later Grishkov and Zavarnitsine gave a complete proof of Mikheev's results. Here we give a direct and self-contained proof that Mikheev's groupoid is a group, in the process extending the result from Moufang loops to Bol loops.

Keywords: Bol loop, Moufang loop, autotopism group, group with triality **AMS Subject Classification:** 20N05

References

- [1] Bruck R.H., A Survey of Binary Systems, Ergebnisse der Mathematik und ihrer Grenzgebiete, Neue Folge, Heft **20**, Springer, Berlin-Göttingen-Heidelberg, 1958.
- [2] Doro S., Simple Moufang loops, Math. Proc. Cambridge Philos. Soc. 83 (1978), 377-392.
- $[3] \ \ Grishkov \ A.N., \ Zavarnitsine \ A.V., \ \textit{Groups with triality}, \ J. \ Algebra \ Appl. \ \textbf{5} \ (2006), \ 441-463.$
- [4] Hall J.I., Moufang loops and groups with triality are essentially the same thing, submitted.
- [5] Mikheev P.O., Enveloping groups of Moufang loops, Uspekhi Mat. Nauk 48 (1993), 191–192;translation in Russian Math. Surveys 48 (1993), 195–196.
- [6] Pflugfelder H.O., Quasigroups and Loops: Introduction, Sigma Series in Pure Mathematics, 7, Heldermann, Berlin, 1990.