

LIE SUPERALGEBRAS BASED ON $\mathfrak{sl}(2, \mathbb{F})$

YUQIU SHENG, WENDE LIU AND XINGXUE MIAO*

Abstract. In this paper, we study a class of Lie superalgebras based on the Lie algebra $\mathfrak{sl}(2, \mathbb{F})$ over a field of characteristic not equal to 2. Applying matrix techniques and methods, we determine their automorphisms group and local automorphisms, and characterize their superderivations and local superderivations.

Mathematics subject classification (2020): 17B40, 15A04.

Keywords and phrases: Lie superalgebra, automorphism, local automorphism, superderivation, local superderivation.

REFERENCES

- [1] M. SCHEUNERT, *The theory of Lie superalgebras*, Lecture Notes in Mathematics 716, Springer-verlag, (1979).
- [2] R. V. KADISON, *Local derivations*, J. Algebra **130** (1990): 494–509.
- [3] D. R. LARSON, A. R. SOUROUR, *Local derivations and local automorphisms of $\mathfrak{B}(X)$* , Proc. Sympos. Pure Math. **51** (1990): 187–194.
- [4] H. X. CHEN, Y. WANG, J. Z. NAN, *Local superderivations on basic classical Lie superalgebras*, Algebra Colloq. **24** (2017): 673–684.
- [5] Y. PAN, Q. LIU, C. BAI AND L. GUO, *PostLie algebra structures on the Lie algebra $sl(2, \mathbb{C})$* , Electron. J. Linear algebra **23** (2012): 180–197.
- [6] S. WANG, W. LIU, *The first cohomology of $\mathfrak{sl}(2, 1)$ with coefficients in χ -reduced Kac modules and simple modules*, J. Pure Appl. Algebra **224** (2020): 106403.