

ISOMORPHISMS IN EQ-ALGEBRAS

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Abstract

In this paper we investigate some isomorphism theorems in EQ-algebras. After establishing some basic results we give the Fundamental Homomorphism Theorem and by using it we state and prove some other isomorphism theorems. We also state and prove a correspondence theorem. Next, using some results of the theory of universal algebra we characterize subdirectly irreducible EQ-algebras.

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REFERENCES

- [1] P.B. Andrews, *An Introduction to Mathematical Logic and Type Theory: To Truth Through Proof* (Kluwer Academic Publishers, Dordrecht, 2002).
doi:10.1007/978-94-015-9934-4
- [2] R.A. Borzooei and B.G. Saffar, *States on EQ-algebras*, *J. Intell. Fuzzy Systems* **29** (2015) 209–221.
doi:10.3233/IFS-151588
- [3] S. Burris and H.P. Sankapannavar, *A course in universal algebra*, *Graduate Text Math.* **78** (1981).
- [4] N. Mohtashamnia and L. Torkzadeh, *The lattice of prefilters of an EQ-algebra*, *Fuzzy Sets and Syst.* **311** (2017) 86–98.
doi:10.1016/j.fss.2016.04.015

- [5] V. Novák, *On fuzzy type theory*, Fuzzy Sets and Syst. **149** (2005) 235–273.
doi:10.1016/j.fss.2004.03.027
- [6] V. Novák and B. De Baets, *EQ-algebras*, Fuzzy Sets and Syst. **160** (2009) 2956–2978.
doi:10.1016/j.fss.2009.04.010
- [7] V. Novák, M. El-Zekey and Radko Mesiar, *On good EQ-algebras*, Fuzzy Sets and Syst. **178** (2011) 1–23.
doi:10.1016/j.fss.2011.05.011
- [8] M. Ward and R.P. Dilworth, *Residuated lattices*, Trans. Amer. Math. Soc. **45** (1939) 335–354.
doi:10.1090/S0002-9947-1939-1501995-3

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