

ON SHEFFER STROKE UP-ALGEBRAS

TAHSIN ONER, TUGCE KATICAN

Department of Mathematics
Ege University
Izmir, Turkey

e-mail: tahsin.oner@ege.edu.tr
tugcektcn@gmail.com

AND

ARSHAM BORUMAND SAEID

Department of Pure Mathematics
Faculty of Mathematics and Computer
Shahid Bahonar University of Kerman
Kerman, Iran

e-mail: arsham@uk.ac.ir

Abstract

In this paper, we introduce Sheffer Stroke UP-algebra (in short, SUP-algebra) and study its properties. We demonstrate that the Cartesian product of two SUP-algebras is a SUP-algebra. After presenting SUP-subalgebras, we define SUP-homomorphisms between SUP-algebras.

Keywords: SUP-algebra, Sheffer stroke operation, SUP-homomorphism.

2010 Mathematics Subject Classification: 06F05, 03G2, 03G10.

REFERENCES

- [1] J.C. Abbott, *Implicational algebras*, Bulletin Mathématique de la Société des Sciences Mathématiques de la République Socialiste de Roumanie **11(59)** (1967) 3–23.
- [2] I. Chajda, *Sheffer operation in ortholattices*, Acta Universitatis Palackianae Olomucensis. Facultas Rerum Naturalium. Mathematica **44** (2005) 19–23.
- [3] R.L. Cignoli, I.M. d’Ottaviano and D. Mundici, *Algebraic Foundations of Many-Valued Reasoning* (Springer Science and Business Media, 2013).
<https://doi.org/10.1007/978-94-015-9480-6>

- [4] G. Grätzer, *General Lattice Theory* (Springer Science and Business Media, 2002).
<https://doi.org/10.1007/978-3-0348-7633-9>
- [5] A. Iampan, *A New Branch of the Logical Algebra: UP-algebras*, *J. Alg Related Topics* **5** (2017) 35–54.
<https://doi.org/10.22124/JART.2017.2403>
- [6] W. McCune, R. Veroff, B. Fitelson, K. Harris, A. Feist and L. Wos, *Short single axioms for Boolean algebra*, *J. Automat. Reas.* **29** (2002) 1–16.
<https://doi.org/10.1023/A:1020542009983>
- [7] T. Oner, T. Katican, A. Borumand Saeid and M. Terziler, *Filters of strong Sheffer stroke non-associative MV-algebras*, *Analele Stiintifice ale Universitatii Ovidius Constanta* **29** (2021) 143–164.
<https://doi.org/10.2478/auom-2021-0010>
- [8] T. Oner, T. Katican and A. Borumand Saeid, *Relation between Sheffer stroke operation and Hilbert algebras*, *Categories and General Algebraic Structures with Applications* **14** (2021) 245–268.
<https://doi.org/10.29252/egasa.14.1.245>
- [9] T. Oner, T. Katican and A. Borumand Saeid, *(Fuzzy) filters of Sheffer stroke BL-algebras*, *Kragujevac J. Math.* **47** (2023) 39–55.
- [10] T. Oner, T. Kalkan and N.K. Gursoy, *Sheffer stroke BG-algebras*, *Int. J. Maps in Math.* **4** (2021) 27–30.
- [11] D.A. Romano, *Notes on UP-ideals in UP-algebras*, *Commun. Adv. Math. Sci.* **I(1)** (2018) 35–38.
<https://doi.org/10.33434/cams.440197>
- [12] D.A. Romano, *Some Properties of Proper UP-filters of UP-algebras*, *Fund. J. Math. Appl.* **1** (2018) 109–111.
<https://doi.org/10.33401/fujma.439246>
- [13] D.A. Romano, *Proper UP-filters of UP-algebra*, *Univ. J. Math. Appl.* **1** (2018) 98–100.
<https://doi.org/10.32323/ujma.417844>
- [14] D.A. Romano, *UP-algebra with apartness*, preprint (April, 2018).
- [15] D.A. Romano, *Pseudo-UP algebras, an introduction*, *Bull. Int. Math. Virtual Inst.* **10** (2020) 349–355.
<https://doi.org/10.7251/BIMVI2002349R>
- [16] D.A. Romano, *Homomorphisms of Pseudo-UP algebras*, *Bull. Int. Math. Virtual Inst.* **11** (2021) 47–53.
<https://doi.org/10.7251/BIMVI2101047R>
- [17] H.M. Sheffer, *A set of five independent postulates for Boolean algebras, with application to logical constants*, *Trans. Amer. Math. Soc.* **14** (1913) 481–488.
<https://doi.org/10.2307/1988701>

Received 28 September 2020

Revised 19 October 2020

Accepted 19 October 2020