

ON THE STRUCTURE SPACE OF A Γ -SEMIGROUP VIA ITS LEFT OPERATOR SEMIGROUP

SARBANI MUKHERJEE (GOSWAMI)

Lady Brabourne College, Kolkata, India

e-mail: sarbani7_goswami@yahoo.co.in

MANASI MANDAL

AND

BISWARANJAN KHANRA

Department of Mathematics
Jadavpur University, Kolkata-700032, India

e-mail: manasi_ju@yahoo.in
biswaranjanmath91@gmail.com

Abstract

The structure space of a semigroup endowed with hull kernel topology is introduced and studied. Also the structure space of a Γ -semigroup is defined and a homeomorphism has been established between structure space of a Γ -semigroup and the structure space of its left operator semigroup. Moreover, various properties of structure space of a Γ -semigroup are studied via its left operator semigroup.

Keywords: operator semigroup, Γ -semigroup, prime ideal, hull-kernel topology.

2010 Mathematics Subject Classification: 20M12, 20Mxx.

REFERENCES

- [1] M.R. Adhikari and M.K. Das, *Structure spaces of semirings*, Bull. Cal. Math. Soc. **86** (1994) 313–317.
- [2] S. Chattopadhyay and S. Kar, *On structure space of Γ -semigroup*, Acta Univ. Palacki Olomuc Fac. Rer. Nat. Math. **47** (2008) 37–46.
- [3] A.H. Clifford and G.B. Preston, *The Algebraic Theory of Semigroups*, American Math. Soc. (Providence, R.I., 1961).
<https://doi.org/10.1090/surv/007.1>

- [4] T.K. Dutta and N.C. Adhikary, *On Γ -semigroup with right and left unities*, Soochow J. Math. **19** (4) (1993) 461–474.
- [5] T.K. Dutta and S. Chattopadhyay, *On Uniformly Strongly Prime Γ -Semigroup*, Anale Stiintifice Ale Universita TII "AL.I.CUZA" IASI Tomul LII, s.I, Mathematica, (2006).
- [6] L. Gillman, *Rings with Housdorff structure space*, Fund. Math. **45** (1957) 1–16.
<https://doi.org/10.4064/fm-45-1-1-16>
- [7] C.W. Kohls, *The space of prime ideals of a ring*, Fund. Math. **45** (1957) 17–27.
<https://doi.org/10.4064/fm-45-1-17-27>
- [8] J. Kist, *Minimal prime ideal of a commutative semigroup*, Proc. London. Math. Soc. **13** (3) (1963) 31–50.
<https://doi.org/10.1112/plms/s3-13.1.31>
- [9] N.K. Saha, *On Γ -semigroup II*, Bull. Cal. Math. Soc. **79** (1987) 331–335.
- [10] N.K. Saha, *On Γ -semigroup III*, Bull. Cal. Math. Soc. **80** (1988) 1–12.
- [11] S. Schwartz, *Prime ideals and maximal ideals in semigroups*, Czechoslovak Math. J. **19** (1969) 72–79.
<https://doi.org/10.21136/CMJ.1969.100877>
- [12] M.K. Sen, *On Γ -semigroups*, in: Int. Conf. on Algebra and Its Appl., Decker Publication (Ed(s)), (New York, 1981).
- [13] M.K. Sen and N.K. Saha, *On Γ -semigroup I*, Bull. Cal. Math. Soc. **78** (1986) 180–186.
- [14] J.R. Munkrees, *Topology*, Pearson Education India.

Received 2 January 2020
Revised 10 December 2020
Accepted 18 December 2020