Discussiones Mathematicae
General Algebra and Applications 42 (2022) 121–122
https://doi.org/10.7151/dmgaa.1379

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, Annale 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*, Czechhoslovak 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