

SEMIGROUPS OF TRUNCATED TOEPLITZ OPERATORS

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Abstract. We characterise the one parameter families of truncated Toeplitz operators that are semigroups, uniformly continuous semigroups and C_0 -semigroups of contractions. We also study their generators.

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REFERENCES

- [1] I. CHALENDAR, D. TIMOTIN, *Commutation relations for truncated Toeplitz operators*, Operators and Matrices **8**, no. 3 (2014), 877–888.
- [2] D. N. CLARK, *One dimensional perturbations of restricted shifts*, J. Analyse Math. **25** (1972), 169–191.
- [3] J. B. CONWAY, *A course in Functional Analysis*, Second edition, Graduate Text in Mathematics, 96. Springer-Verlag, New York, 1990.
- [4] R. B. CROFOOT, *Multipliers between invariant subspaces of the backward shift*, Pacific J. Math. 166 (1994), no. 2, 225–246.
- [5] K. ENGEL AND R. NAGEL, *One-Parameter Semigroups for Linear Evolution Equations*, Graduate Texts in Mathematics, Springer, New York, 1995.
- [6] S. R. GARCIA, M. PUTINAR, *Complex symmetric operators and applications*, Trans. Amer. Math. Soc. **358** (2006), 1285–1315.
- [7] S. R. GARCIA, W. T. ROSS, *Recent progress on truncated Toeplitz operators*, in: J. Mashreghi, E. Fricain (Eds.), Blaschke Products and Their Applications, in: Fields Inst. Commun., vol. 65, Springer, New York, (2013), 275–319.
- [8] R. V. KADISON, J. R. RINGROSE, *Fundamentals of the theory of operator algebras. Vol. I. Elementary theory*, Graduate Studies in Mathematics, 15. American Mathematical Society, Providence, RI, 1997.
- [9] A. PAZY, *Semigroups of Linear Operators and Applications to Partial Differential Equations*, Springer-Verlag, New York, 1983.
- [10] D. SARASON, *Algebraic properties of truncated Toeplitz operators*, Oper. Matrices **1** (2007), 491–526.
- [11] D. SARASON, *Unbounded operators commuting with restricted backwards shifts*, Oper. Matrices, **2** (2008), 583–601.
- [12] D. SARASON, *Unbounded Toeplitz operators*, Integral Equations Oper. Theory **61** (2008), 281–298.
- [13] N. A. SEDLOCK, *Algebras of truncated Toeplitz operators*, Oper. Matrices **5** (2011), 309–326.
- [14] N. A. SEDLOCK, *Properties of Truncated Toeplitz Operators*, ProQuest LLC, Ann Arbor, MI, 2010. Ph.D. thesis, Washington University in St. Louis.
- [15] S.M. SEUBERT, *Dissipative compressed Toeplitz operators on shift co-invariant subspaces*, Houston J. Math., **32**, no. 1 (2006), 277–292.
- [16] S.M. SEUBERT, *Semigroups of operators on quotient spaces of H^2* , J. Math. Anal. Appl. **167** (1992) 289–298.
- [17] S. M. SEUBERT, *Unbounded dissipative compressed Toeplitz operators*, J. Math. Anal. Appl. **290** (2004), 132–146.
- [18] D. SUÁREZ, *Closed commutants of the backwards shift operator*, Pacific J. Math., **179** (1997), 371–396.