

THE GENERALIZED CROFOOT TRANSFORM

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Abstract. We introduce a generalized Crofoot transform between the model spaces corresponding to matrix-valued inner functions. As an application, we obtain results about matrix-valued truncated Toeplitz operators.

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REFERENCES

- [1] J. A. BALL, A. LUBIN, *On a class of contractive perturbations of restricted shifts*, Pacific J. Math. 63 (1976), 309–323.
- [2] CH. BENHIDA, D. TIMOTIN, *Functional models and finite dimensional perturbations of the shift*, Integral Equ. Oper. Theory 29 (1997), 187–196.
- [3] CH. BENHIDA, D. TIMOTIN, *Finite rank perturbations of contractions*, Integral Equ. Oper. Theory 36 (2000), 253–268.
- [4] N. CHEVROT, E. FRICAIN, D. TIMOTIN, *The characteristic function of a complex symmetric contraction*, Proc. Amer. Math. Soc. 135 (2007), 2877–2886.
- [5] J. A. CIMA, S. R. GARCIA, W. T. ROSS, W. R. WOGEN, *Truncated Toeplitz operators: spatial isomorphism, unitary equivalence, and similarity*, Indiana Univ. Math. J. 59 (2010), 595–620.
- [6] R. B. CROFOOT, *Multipliers between invariant subspaces of the backward shift*, Pacific J. Math. 166 (1994), 225–246.
- [7] P. A. FUHRMANN, *On a class of finite dimensional contractive perturbations of restricted shift of finite multiplicity*, Israel J. Math. 16 (1973), 162–175.
- [8] S. R. GARCIA AND M. PUTINAR, *Complex symmetric operators and applications*, Trans. Amer. Math. Soc. 358 (2006), 1285–1315.
- [9] R. KHAN, DAN. TIMOTIN, *Matrix valued truncated Toeplitz operators: Basic Properties*, Journal of Complex Analysis and Oper. Theory, 2017, doi:10.1007/s11785-017-0675-3.
- [10] V. V. PELLER, *Hankel Operators and their Applications*, Springer Verlag, New York, 2003.
- [11] D. SARASON, *Algebraic properties of truncated Toeplitz operators*, Oper. Matrices 1 (2007), 491–526.
- [12] B. SZ.-NAGY, C. FOIAS, H. BERCOVICI, L. KÉRCHY, *Harmonic Analysis of Operators on Hilbert Space*, Revised and enlarged edition, Universitext, Springer, New York, 2010.