

## THE DENSITY OF THE RANGE OF $X \mapsto AX - XB$ WITH $A, B^*$ $M$ -HYPONORMALS

VASILE LAURIC

**Abstract.** We extend a result of L. A. Fialkow concerning the density of the range and the injectivity of the operator  $X \mapsto AX - XB$  with  $A, B^*$   $M$ -hyponormal operators with no holes in the essential spectrum of negative Fredholm index.

*Mathematics subject classification (2010):* 47B20.

*Keywords and phrases:* Generalized derivations, hyponormal operators, density of the range.

### REFERENCES

- [1] R. BHATIA AND P. ROSENTHAL, *How and why to solve the operator equation  $AX - XB = Y$* , Bull. London Math. Soc., **29** (1997), 1–21.
- [2] C. DAVIS AND P. ROSENTHAL, *Solving linear operator equations*, Canadian J. Math., **26** (1994), 1384–1389.
- [3] L. A. FIALKOW, *A note on the operator  $X \mapsto AX - XB$* , Trans. Amer. Math. Soc., **243** (1978), 147–168.
- [4] L. A. FIALKOW, *A note on norm ideals and the operator  $X \mapsto AX - XB$* , Israel J. Math., **32** (1979), 331–348.
- [5] L. A. FIALKOW, *A note on the range of the operator  $X \mapsto AX - XB$* , Illinois J. Math., **75** (1981), 112–124.
- [6] C. M. PEARCY, *Some recent developments in operator theory*, Amer. Math. Soc., Providence, R. I., 1977.
- [7] J. D. PINCUS, *Commutators and systems of singular integral equations. I*, Acta Math, **121** (1968), 219–249.