

ENTIRE UNBOUNDED FUNCTIONS ON BANACH SPACES  
WITH A MONOTONE SCHAUDER BASIS

JOSÉ M. ANSEMIL, RICHARD M. ARON and SOCORRO PONTE

**Abstract.** It is well-known that on any complex infinite dimensional Banach space there is an entire function that is unbounded on some ball. Here we shall give an explicit construction of such entire functions on any infinite dimensional complex normed space with a monotone Schauder basis.

**MSC 2010.** 46G20.

**Key words.** Entire function, monotone Schauder basis.

REFERENCES

- [1] ARON, R.M., *Entire functions of unbounded type on a Banach space*, Boll. Un. Mat. Ital., **9** (4) (1974), 28–31.
- [2] BACHMAN, G. and NARICI, L., *Functional Analysis*, Academic Press, Inc. 1966.
- [3] DIESTEL, J., *Sequences and Series in Banach Spaces*, Grad. Texts in Math., **92**, Springer-Verlag, 1984.
- [4] DINEEN, S., *Unbounded holomorphic functions on a Banach space*, J. London Math. Soc., **4** (2) (1971/72), 461–465.
- [5] DINEEN, S., *Complex Analysis on Infinite Dimensional Spaces*, Springer Monographs in Mathematics, Springer-Verlag, 1999.
- [6] SINGER, I., *Basis in Banach Spaces I*, Springer-Verlag, Berlin, 1970.

Universidad Complutense de Madrid  
Facultad de Ciencias Matemáticas  
Departamento de Análisis Matemático  
28040 Madrid, Spain  
E-mail: jm\_ansemil@mat.ucm.es

Kent State University  
Department of Mathematical Sciences  
Kent, Ohio, 44242, USA  
E-mail: aron@math.kent.edu

Universidad Complutense de Madrid  
Facultad de Ciencias Matemáticas  
Departamento de Análisis Matemático  
28040 Madrid, Spain  
E-mail: socorro.ponte@mat.ucm.es