Hypercyclicity of convolution operators on spaces of entire functions

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In [4] Godefroy and Shapiro proved that all convolution operators on the space of entire functions on $\mathbb{C}^n$ which are not multiples of the identity are hypercyclic. Analogues of this result for some spaces of holomorphic functions on infinite dimensional complex Banach spaces appeared in [1] and [5]. In [3] the authors generalized these results to spaces of holomorphic functions associated to coherent sequences of spaces of polynomials satisfying certain conditions.

In this work we prove results concerning hypercyclic convolution operators on Fréchet spaces of entire functions of bounded type associated to a holomorphy type. The results we prove, which will appear in [2], generalize all previous results in this direction from [1,3,4,5].

REFERENCES

[1] R. Aron and J. Bès, *Hypercyclic differentiation operators*, in: Function Spaces, Edwardsville, IL, 1998. In: Contemp. Math., vol. 232, Amer. Math. Soc., Providence, RI, 1999, pp. 39–46.

[2] F. Bertoloto, G. Botelho, V.V. Fávaro, and A.M. Jatobá, *Hypercyclicity of convolution operators on spaces of entire functions*. Ann. Inst. Fourier, to appear.

[3] D. Carando, V. Dimant, and S. Muro, *Hypercyclic convolution operators on Fréchet spaces of analytic functions*. J. Math. Anal. Appl. **336** (2007), 1324–1340.

[4] G. Godefroy and J.H. Shapiro, *Operators with dense, invariant, cyclic vector manifolds*, J. Funct. Anal. **98** (1991), 229–269.

[5] H. Petersson, *Hypercyclic subspaces for Fréchet space operators*, J. Math. Anal. Appl. **319** (2006), 764–782.

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