

Ultraholomorphic extension maps for spaces of ultradifferentiable jets

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Dedicated to the memory of Pascal Laubin

Abstract

The key results (4.3, 6.2, 7.2 and 7.6) provide ultraholomorphic approximation continuous linear maps for spaces of ultradifferentiable functions on an open subset of \mathbb{R}^n .

They lead to results about the existence of continuous linear extension maps from the spaces of the ultradifferentiable Whitney jets of Beurling or Roumieu type on a closed subset F of \mathbb{R}^n . Their values belong to spaces of functions defined on $\mathbb{R}^n \cup D$: they are ultradifferentiable on \mathbb{R}^n and ultraholomorphic on D , an open subset of \mathbb{C}^n such that $D \cap \mathbb{R}^n = \mathbb{R}^n \setminus F$. We consider the cases when the ultradifferentiable jets and functions are defined by means of a weight or of a sequence of positive numbers.

Mathematics Subject Classification: Primary: 46E10, 30D60, 32D99.

Secondary: 46A13, 30H05, 26E05.

Key words: Whitney jet, extension map, real-analytic extension, ultradifferentiable jet/function, ultraholomorphic function, Beurling type, Roumieu type.

1 Introduction

This paper is announced in the final remark of [8]: it contains the generalization of the results therein to the ultradifferentiable setting. We consider

*Partially supported by the Belgian C.G.R.I.

†Partially supported by DGES pr. 96-0758 and the Convenio Hispano-Belga.