

# Accepted Manuscript

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PII: S0021-7824(17)30159-9

DOI: <https://doi.org/10.1016/j.matpur.2017.10.008>

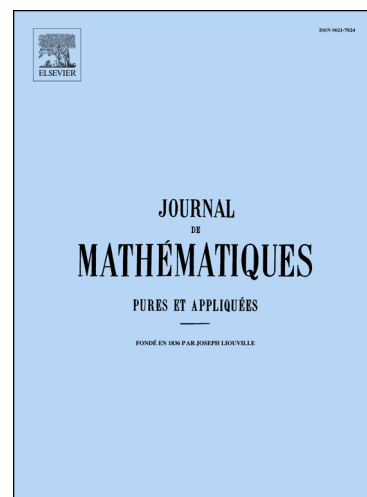
Reference: MATPUR 2951

To appear in: *Journal de Mathématiques Pures et Appliquées*

Received date: 15 December 2016

Please cite this article in press as: S. Pilipović et al., On quasianalytic classes of Gelfand-Shilov type. Parametrix and convolution, *J. Math. Pures Appl.* (2017), <https://doi.org/10.1016/j.matpur.2017.10.008>

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# On quasianalytic classes of Gelfand-Shilov type. Parametrix and convolution

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## Abstract

We develop a convolution theory for quasianalytic ultradistributions of Gelfand-Shilov type. We also construct a special class of ultrapolynomials, and use it as a base for the parametrix method in the study of new topological and structural properties of several quasianalytic spaces of functions and ultradistributions. In particular, our results apply to Fourier hyperfunctions and Fourier ultra-hyperfunctions.

## Résumé

On développe une théorie de convolution pour les ultradistributions quasianalytiques de type Gelfand-Shilov. On construit aussi une classe spéciale des ultrapolynômes et on l'utilise comme base pour la méthode de parametrix dans l'étude des nouvelles propriétés topologiques et structurelles de quelques espaces quasianalytiques fonctionnels et ultradistributionnels. En particulier, nos résultats appellent aux hyperfonctions et ultrahyperfonctions de Fourier.

*Keywords:* Convolution, parametrix method, quasianalytic classes, ultradifferentiable functions, ultradistributions, Gelfand-Shilov spaces, hyperfunctions, ultrahyperfunctions  
*2010 MSC:* 46E10, 46F05, 46E40, 46F10, 46F15, 44A35

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## Introduction

Convolution is among the most important operations in mathematical analysis. In the case of distributions, this a classical and much studied topic within Schwartz' theory [17, 40, 41, 39, 43] (see also the relevant references [10, 11, 18, 44]). Although many central problems concerning the convolution of Schwartz distributions were solved long time ago, one may still find many interesting results in the recent literature [1, 12, 30, 31].

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<sup>1</sup>S. Pilipović is supported by the Serbian Ministry of Education, Science and Technological Development, through the project 174024

<sup>2</sup>J. Vindas gratefully acknowledges support by Ghent University, through the BOF-grant 01N01014

*Preprint submitted to Journal de Mathématiques Pures et Appliquées*

*October 26, 2017*

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