

Accepted Manuscript

Dilations of Operator-valued Measures with bounded p -variations and framings on Banach spaces

Deguang Han, David R. Larson, Rui Liu

PII: S0022-1236(18)30020-X
DOI: <https://doi.org/10.1016/j.jfa.2018.01.006>
Reference: YJFAN 7943

To appear in: *Journal of Functional Analysis*

Received date: 23 May 2017
Accepted date: 5 January 2018

Please cite this article in press as: D. Han et al., Dilations of Operator-valued Measures with bounded p -variations and framings on Banach spaces, *J. Funct. Anal.* (2018), <https://doi.org/10.1016/j.jfa.2018.01.006>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



DILATIONS OF OPERATOR-VALUED MEASURES WITH BOUNDED p -VARIATIONS AND FRAMINGS ON BANACH SPACES

DEGUANG HAN, DAVID R. LARSON, AND RUI LIU

ABSTRACT. The dilations for operator-valued measures (OVMs) and bounded linear maps indicate that the dilation theory is in general heavily dependent on the Banach space nature of the dilation spaces. This naturally led to many questions concerning special type of dilations. In particular it is not known whether ultraweakly continuous (normal) maps can be dilated to ultraweakly continuous homomorphisms. We answer this question affirmatively for the case when the domain algebra is an abelian von Neumann algebra. It is well known that completely bounded Hilbert space operator valued measures correspond to the existence of orthogonal projection-valued dilations in the sense of Naimark and Stinespring, and OVMs with bounded total variations are completely bounded but not the vice-versa. With the aim of classifying OVMs from the dilation point of view, we introduce the concept of total p -variations for OVMs. We prove that any completely bounded OVM has finite 2-variation, and any OVM with finite p -variation can be dilated to a (but usually non-Hilbertian) projection-valued measure of the same type. With the help of framing induced OVMs, we prove that conventional minimal dilation space of a non-trivial framing contains c_0 , then does not have bounded p -variation.

CONTENTS

1. Introduction	2
2. Preliminaries	4
3. Normal Dilations	6
4. OVM with p -Bounded Variations	9
5. Framings for Banach spaces	14
6. Examples and Questions	19
6.1. Bounded 2-variation and complete boundedness	19
6.2. Bounded p -variation and p -summable property	20
References	22

2010 *Mathematics Subject Classification.* Primary 46G10, 46L07, 46B15, 46B28, 46B45, 47B38; Secondary 47A20.

Key words and phrases. operator-valued measure; framing; dilation; Banach space; normal map; bounded p -variation.

The authors were all participants in the NSF funded Workshop in Analysis and Probability at Texas A&M University. Deguang Han acknowledges partial support by NSF grant DMS-1403400. Rui Liu was partially supported by NSFC grants (No.11671214, 11201336) and hundred young academia leaders program of Nankai University.

Download English Version:

<https://daneshyari.com/en/article/8896757>

Download Persian Version:

<https://daneshyari.com/article/8896757>

[Daneshyari.com](https://daneshyari.com)