

## Accepted Manuscript

Approximation on variable exponent spaces by linear integral operators

Bing-Zheng Li, Bo-Lu He, Ding-Xuan Zhou

PII: S0021-9045(17)30091-6  
DOI: <http://dx.doi.org/10.1016/j.jat.2017.07.009>  
Reference: YJATH 5165

To appear in: *Journal of Approximation Theory*

Received date: 1 November 2016  
Revised date: 27 July 2017  
Accepted date: 30 July 2017

Please cite this article as: B. Li, B. He, D. Zhou, Approximation on variable exponent spaces by linear integral operators, *Journal of Approximation Theory* (2017), <http://dx.doi.org/10.1016/j.jat.2017.07.009>

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.



# Approximation on Variable Exponent Spaces by Linear Integral Operators

Bing-Zheng Li, Bo-Lu He

Department of Mathematics, Zhejiang University

Hangzhou 310027, P. R. China, libingzheng@zju.edu.cn

Ding-Xuan Zhou

Department of Mathematics, City University of Hong Kong

Kowloon, Hong Kong, mazhou@cityu.edu.hk

## Abstract

This paper aims at approximation of functions by linear integral operators on variable exponent spaces associated with a general exponent function on a domain of a Euclidean space. Under a log-Hölder continuity assumption of the exponent function, we present quantitative estimates for the approximation and solve an open problem raised in our earlier work. As applications of our key estimates, we provide high orders of approximation by quasi-interpolation type and linear combinations of Bernstein type integral operators on variable exponent spaces. We also introduce  $K$ -functionals and moduli of smoothness on variable exponent spaces and discuss their relationships and applications.

**Key Words and Phrases:** variable exponent space, log-Hölder continuity, integral operators, Bernstein type operators, learning theory,  $K$ -functional

**AMS Subject Classification Numbers:** 41A36, 68Q32, 68T05

## 1 Introduction

Approximation of functions by positive linear operators is a classical topic in approximation theory starting with the Bernstein operators [7], for approximating functions in the

Download English Version:

<https://daneshyari.com/en/article/5773714>

Download Persian Version:

<https://daneshyari.com/article/5773714>

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