

A Korovkin theorem in multivariate modular function spaces

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Abstract. In this paper a modular version of the classical Korovkin theorem in multivariate modular function spaces is obtained and applications to some multivariate discrete and integral operators, acting in Orlicz spaces, are given.

1. Introduction

The class of modular function spaces was introduced, for the first time, by H. Nakano [29] and then extensively studied by J. Musielak [27] who developed a theory of approximation in this general frame for classes of linear and nonlinear operators ([28]). An abstract approach to the theory of approximation was given in its definite form in [4]. This book represents the first attempt at a comprehensive treatment of approximation theory in modular spaces for nets of nonlinear operators. The interest in working in such general spaces is mainly to ensure an unifying approach which includes, by a unique method, several results in various functional spaces. Indeed modular function spaces include L^p -spaces, Orlicz spaces, Musielak-Orlicz