



ISSN: 1889-3066

© 2013 Universidad de Jaén

Web site: jja.ujaen.es

Jaen J. Approx. 5(1) (2013), 19–34

Jaen Journal
on Approximation

On basicity of systems of generalized Faber polynomials

B. T. Bilalov and T. I. Najafov

Abstract

In this paper a double system of generalized Faber polynomials with complex-valued coefficients is considered. Under certain conditions on the coefficients, the basicity of this system is proved in Lebesgue spaces $L_p(\Gamma)$, $1 < p < +\infty$, where Γ is a Lyapunov or Radon curve on the complex plane. Besides, basicity of systems of generalized Faber polynomials is proved in Smirnov spaces E_p .

Keywords: approximation, Faber system, basicity, Smirnov space.

MSC: Primary 30D55; Secondary 41A58, 42C15.

§1. Introduction

Faber polynomials in complex domains are well known in approximation theory. Approximation properties of Faber polynomials in the class of bounded analytical functions are well studied (see e.g. [5, 8, 18, 19]). The approximation by the Faber polynomials in Smirnov class is a relatively new field of research, but there have already appeared a number of works dedicated to it (see e.g. [9]-[13]). They are good tools on investigating many problems in approximation theory and in theory of conformal mappings. Further information about these problems can be found in [5], [9]-[13], [15]-[19] (and references

Communicated by
D. Leviatan

Received
October 27, 2012
Accepted
June 5, 2013