VORONOVSKAYA-TYPE THEOREM FOR POSITIVE LINEAR OPERATORS BASED ON LAGRANGE INTERPOLATION*

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Dedicated to Dr. Dan Tiba on the occasion of his 70th anniversary

Abstract

Since the classical asymptotic theorems of Voronovskaya-type for positive and linear operators are in fact based on the Taylor's formula which is a very particular case of Lagrange-Hermite interpolation formula, in the recent paper Gal [3], I have obtained semi-discrete quantitative Voronovskaya-type theorems based on other Lagrange-Hermite interpolation formulas, like Lagrange interpolation on two and three simple knots and Hermite interpolation on two knots, one simple and the other one double. In the present paper we obtain a semi-discrete quantitative Voronovskaya-type theorem based on Lagrange interpolation on arbitrary $p + 1$ simple distinct knots.

MSC: 41A05, 41A17, 41A36.

keywords: Lagrange interpolation, Newton form of Lagrange interpolation, positive linear operators, quantitative semi-discrete Voronovskaya results, modulus of continuity, Bernstein polynomials.