ON WEIGHTED LACUNARY INTERPOLATION[*]

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Abstract. In this paper the regularity of a special lacunary interpolation problem is investigated, where for a given r ($r \geq 2$, $r \in \mathbb{N}$) the derivatives up to the r-2nd order together with the weighted rth derivative are prescribed at the nodes. Sufficient conditions on the nodes and the weight function, for the problem to be regular, are derived. Under these conditions a method to construct the explicit formulae for the fundamental polynomials of the regular weighted lacunary interpolation is discussed. Examples are presented using the roots of the classical orthogonal polynomials.

Key words. Birkhoff interpolation, lacunary interpolation, Hermite interpolation, weighted $(0, 2)$-interpolation, weighted $(0, 1, 3)$-interpolation, regularity, explicit formulae

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