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A de Montessus type convergence study for a vector-valued rational interpolation procedure of epsilon class

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Abstract

In a series of recent publications of the author, three rational interpolation methods, denoted IMPE, IMMPE, and ITEA, were proposed for vector-valued functions $F(z)$, where $F : \mathbb{C} \rightarrow \mathbb{C}^N$, and their algebraic properties were studied. The convergence studies of two of the methods, namely, IMPE and IMMPE, were also carried out as these methods are being applied to meromorphic functions with simple poles, and de Montessus and König type theorems for them were proved. In the present work, we concentrate on ITEA. We study its convergence properties as it is applied to meromorphic functions with simple poles and prove de Montessus and König type theorems analogous to those obtained for IMPE and IMMPE.

Keywords: vector-valued rational interpolation, Hermite interpolation, Newton interpolation formula, de Montessus theorem, König theorem.

MSC: 30E10, 30E15, 41A20, 41A25.

§1. Introduction and background

In [5], the author developed three rational interpolation methods for vector-valued functions of a complex variable. These methods were denoted IMPE, IMMPE and

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