Qeios

Peer Review

Review of: "Cauchy-Type Identities Through Collocation Matrices"

Yasmina Khiar Viana[1]

1. Universidad de Zaragoza, Spain

This work explains a generalized framework for the Cauchy identity, based on the determinant expansion of collocation matrices. It demonstrates how this approach leads to an infinite family of identities, with the classical Cauchy identity as a special case. To illustrate its versatility, several examples are provided, highlighting key connections and applications. The paper addresses fundamental topics in the field and presents novel results in the theory of Schur functions and polynomials.

The proofs in the article are correct and rigorous, reflecting a deep understanding of the underlying theory. In particular, the explanations provided to justify the chain of equalities in Theorem 1 are well-founded, since some transitions are not immediately evident. These clarifications help the reader follow the proof more easily.

It is suggested to add an introductory paragraph at the beginning of Section 2, before the statement of Theorem 1. This would better contextualize the presented results and enhance their readability.

To make the work clearer and more self-contained, explicit definitions of certain concepts used in the text, such as the Schur function or polynomial, are recommended. These definitions could be included in a preliminary subsection or as part of the introduction to Section 2. This would improve the reader's understanding and minimize the need for external references to grasp the content of the article.

Declarations

Potential competing interests: No potential competing interests to declare.

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