Yes  [X]  No
Member of Mathematical Association

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Time: 10 minutes.

Title of Paper: Convergent Solutions

Abstract of Paper

Mathematical Association of America, Inc.
The abstract should be in the form of a brief and concise statement of the main results or points of view of the paper, without demonstrations and with a minimum of formulae. It should not exceed 100 words and should be compressed if possible into a single paragraph. It should be written in the third person. The abstract should be typewritten and in a form suitable for immediate publication in the MONTHLY.

This paper deals with the solution of the linear homogeneous difference equation \( X(s + 1) = s^h A(s) X(s) \) where \( s \) is complex, \( A(s) \) and \( X(s) \) are 2 by 2 matrices and \( A(s) \) is representable as a power series in \( s^{-1} \) with known coefficients convergent in some neighborhood of \( s = \infty \). Formal power series solutions in powers of either \( s^{-1} \) or \( s^{-\frac{1}{2}} \) are obtained. With one exception these are shown to be asymptotic representations of true solutions in certain regions of the \( s \)-plane. The asymptotic series solutions in general diverge, nevertheless are Borel summable and replaceable by convergent factorial series.