

## 用矩阵符号函数解(广义)周期Sylvester方程

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## SOLVING THE (GENERALIZED) PERIODIC SYLVESTER EQUATION WITH THE MATRIX SIGN FUNCTION

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**摘要** (广义)周期Sylvester方程来源于周期离散线性系统. 本文主要研究这类方程满足特征值分别位于开左半复平面和开右半复平面或位于单位圆周内和单位圆外条件时用矩阵符号函数求解的数值方法. 并通过数值例子说明我们的结论.

**关键词:** 矩阵符号函数 (广义)周期Sylvester方程 Newton迭代

**Abstract:** The (generalized) periodic Sylvester equation arises from linear periodic discrete-time systems. This paper is devoted to use the matrix sign function to solve (generalized) periodic Sylvester equations, which eigenvalues are contained in the open left half complex plane and the open right half complex plane or inside the unit circle and outside the unit circle. A numerical example illustrates our results.

**Key words:** The matrix sign function (generalized) periodic Sylvester equations Newton iteration

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