

论文

柱形域椭圆型偏微分方程的横向本征函数的解法

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摘要:

一、引论核柱形结构在工程中是常见的,它的求解方法有很大的实际意义也很有理论价值。例

关键词:

ON THE TRANSVERSE EIGENVECTOR SOLUTION OF THE ELLIPTIC PARTIAL DIFFERENTIAL EQUATION IN THE PRISMATIC DOMAIN

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Abstract:

The algebraic Riccati equations are derived by the limiting process of the semi-analytical method reduced transversely discretized model of the partial differential equation via the variational principle. The close relation of that model with the equations in the linear quadratic optimal control is pointed out. The dual vector is introduced and the physical interpretation for the positive definite matrix solution of the Riccati equations is given on that basis. The canonical transformation matrix is constructed with the solution of the algebraic Riccati equations, then the Hamiltonian matrix is block-diagonalized and the size of the eigenvalue equation is reduced to half of the original one. It is only necessary to solve one of the two equations, the other one can be obtained by some elementary matrix algebraic operations. That gives the foundation for the eigenvector expansion method in solving differential equations.

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