

Thesis Title A Simple Algorithm for Finite Element Galerkin Method
with Piecewise Hermite Cubic Basis for Second Order
Boundary Value Problems

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ABSTRACT

In this thesis, second order boundary value problems were solved using finite element Galerkin method. Piecewise Hermite cubic interpolation was used to approximate the coefficient functions in differential equation. The resulted coefficient matrix does not depend on coefficient function. Therefore, once the coefficient matrix was evaluated, it can be readily used for solving other problems. The method developed in this thesis yields a simple numerical algorithm that can be applied to solve both linear and nonlinear partial differential equations.

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