

Bi-Dimensional Spectral Basis

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Abstract : Spectral methods are usually applied to solve uni-dimensional boundary value problems. With the advantage of the creation of multidimensional basis, we propose a new spectral method for bi-dimensional problems. In this article, we start by creating bi-spectral basis by different ways, we developed also a new relations to determine the expressions of spectral coefficients in different partial derivatives expansions. Finally, we propose the principle of a new bi-spectral method for the bi-dimensional problems.

Keywords : boundary value problems, bi-spectral methods, bi-dimensional Legendre basis, spectral method

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