Research

Colloquium

Integration preconditioning operators for the Chebyshev-Legendre spectral methods

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地　點：**應用數學系多媒體教室（理 408 室）**

摘　要：

Spectral and pseudospectral methods have been used to seek approximation solutions to differential equations for decades, due to the superior convergence rates of these methods. However, these numerical differential equations are in general ill-conditioned, and great care must be exercised to avoid inaccurate computations and large computing time. In this talk, we will present integration preconditioning matrices which can be used to reduce the stiffness of numerical schemes, so that the aforementioned issues can be easily resolved. Special attention will be paid upon constructing integration preconditioning matrices for the Legendre approximation methods utilizing Chebyshev grid points, so that by applying these operators numerical differential equations can be solved accurately and efficiently. This is a joint work with T. A. Chen, National Chung Hsing University and with Prof. Y. T. Li, Fu-Jen Catholic University.

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