

理論科學研究中心

2012 Special Program in Applied Mathematics and Applied Mechanics

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講題：Nonuniqueness in BEM/BIEM and its treatment using SVD

摘要： It is well known that nonuniqueness occurs in BEM for degenerate problems containing degenerate scale, degenerate boundary, spurious eigenvalue and fictitious frequency as shown in Figure 1. By employing the SVD technique with respect to the four influence matrices in the dual BEM, the degenerate mechanism can be studied in a unified manner. It is interesting to find that true information in physics due to rigid body mode and true eigensolution is found in the right unitary vector with respect to the corresponding zero singular value while the spurious information in mathematics due to degenerate boundary, degenerate scale, spurious mode and fictitious frequency is imbedded in the left unitary vector as shown in Figure 2. The SVD updating term is employed to extract the true information while SVD updating document is utilized to filter out the spurious information. Several examples including degenerate boundary, degenerate scale, spurious eigenvalue and fictitious frequency are demonstrated to see the unified formulation.

日期：2012 年 3 月 21 日 (星期三)

時間：15 : 00 – 17 : 00

地點：臺灣大學數學研究中心 (原新數學館) 308 室

主持人：張建成教授(臺灣大學應力所)、郭鴻基教授(臺灣大學大氣系)、許文翰教授(臺灣大學工科系)

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