III European Conference on Computational Mechanics
Solids, Structures and Coupled Problems in Engineering
C.A. Mota Soares et al. (eds.)
Lisbon, Portugal, 5–8 June 2006

A Regularized Strong-form Meshfree Method for Adaptive Analysis

G.R. Liu, Bernard B.T. Kee

Centre for ACES, Department of Mechanical Engineering,
National University of Singapore, 9 Engineering Drive 1, Singapore 117576
mpeliugr@nus.edu.sg; g0301110@nus.edu.sg

ABSTRACT

This talk presents an adaptive meshfree method which is based on strongform formulation and does not use any mesh predefined through node connectivity. In this present formulation, a radial point collocation procedure is used to discretize the system governing equations. Techniques are presented to stabilize the solution to obtain stable and accurate results. Adaptive scheme adopted in this work uses an error indicator based on residuals. Simple and practical refinement procedures are also presented for additional node insertion at each adaptive step. Numerical examples are presented to demonstrate that the proposed adaptive meshfree method can obtain efficiently stable solutions of desired accuracy.

References

[1] G. R. Liu and Y. T. Gu, An introduction to meshfree methods and their programming, Springer, 2005.