

A MLPG Formulation for Stress Analysis in Bi-dimensional Elastic Bodies

Abstract

In this work, a meshfree method known as Meshless Local Petrov-Galerkin was implemented in a bidimensional linear elasticity problem. Bidimensional MLS shape functions were used in the polynomial approximation of the displacement and stress fields. The numerical integration was carried out by the Gauss-Legendre scheme and the quadrature points were located using the cartesian coordinate system. The local integration domain and the influence domain had circular shapes. A comparison with the analytical solutions of a plate with a circular hole subjected to traction was done. Numerical results showed a good agreement in the displacement and stress fields. Some schemes for improving the accuracy of the solutions were proposed.