



Investigation of Elasto-plastic Fracture Behaviour Using EFGM

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Book Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Behaviour of Elasto-Plastic Fracture Behaviour | In this work, EFG method has been applied to solve elasto-plastic fracture mechanics problems. This method, which belongs to the class of meshless method, facilitated the modeling of any arbitrary crack with an ease. To carry out this work, the incremental relations for plastic deformation of a system are used, and non linear equations have been obtained using incremental theory of plasticity. These equations are solved by assuming piece wise linear approximation in each of the load step. The size of plastic zone has been calculated around the tip of the crack by elasto-plastic EFG method. The results have been obtained for an edge crack problem in plane stress analysis under mode-I loading. The results thus obtained are found reasonably accurate, and in good agreement with those obtained by FEM and available literature work. Moreover, the present work lays the foundation for solving stable crack growth in elasto-plastic fracture problems, where usual methods like FEM either fail to predict the plastic zone efficiently or very difficult to implement due to the requirement of remeshing or conformal mesh. | Format: Paperback | Language/Sprache: english | 92...



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