Stress Field Induced By an Interfacial Edge Dislocation in a Multi-Layered Medium

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Abstract : A novel method is presented for obtaining the stress field induced by an edge dislocation in a multilayered composite. To demonstrate the applications of the obtained solution, we consider the problem of an interfacial crack in a periodically layered bimaterial medium. The crack is modeled as a continuous distribution of edge dislocations and the Distributed Dislocation Technique (DDT) is utilized to obtain numerical results for the energy release rate (ERR). The numerical results correspond well with previously published results and the comparison serves as a validation of the obtained dislocation solution.