addition, the discontinuous elements circumvent the problem of collocation at crack tips, crack kinks and crack-edge corners. The effective treatment of the hypersingular integrals that appear in the traction equation is of fundamental importance. For curved boundary elements a regularization integration formula, based on the definition of ordinary finite-part integrals, is proposed in the present paper. For flat boundary elements, the direct analytic integration is the most effective method to deal with such integrations. At a crack node, singular integrations do occur twice, once on the self-point element and again in the opposite one. This feature prevents the use of the standard rigid body condition to evaluate indirectly the diagonal terms of the algebraic equations at crack nodes. Several cracked geometries were analysed with the DBEM; accurate stress intensity factors were always obtained with the J-integral method.

REFERENCES