Stress intensity factor for an elastic half plane weakend by multiple curved cracks

ABSTRACT

Modified complex potential with free traction boundary condition is used to formulate the curved crack problem in a half plane elasticity into a singular integral equation. The singular integral equation is solved numerically for the unknown distribution dislocation function. Numerical examples exhibit the stress intensity factor increases as the cracks getting close to each other, and close to the boundary of the half plane.

Keyword: Stress intensity factor; Elastic half plane; Curved crack; Singular integral equation