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Mode III fracture problem of an arbitrarily oriented crack in an FGPM strip bonded to a homogeneous piezoelectric half plane. *(English)* Zbl 1258.74187

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Summary: This paper studies the Mode III electric-elastic field of a cracked functionally graded piezoelectric strip bonded to a homogeneous piezoelectric half plane. The crack is oriented in arbitrary direction. The material properties of the strip vary along the strip thickness in exponential forms. By using the Fourier transform, the problem can be formulated to a system of singular integral equations and solved by applying the Gauss-Chebyshev integration formula. The effects come from the edge, crack orientations and the nonhomogeneous material parameter on intensity factors are discussed graphically.

**MSC:**

74R10 Brittle fracture

74F15 Electromagnetic effects in solid mechanics

**Keywords:**

functionally graded piezoelectric material; arbitrarily oriented crack; singular integral equations; Gauss-Chebyshev integration formula

**Full Text:** DOI

**References:**


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