

Yang, S.; Yuan, F. G.**Interfacial circular crack in cylindrically anisotropic composites under antiplane shear.**(English) [Zbl 0877.73052](#)

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The paper investigates the antiplane shear problem of a dissimilar interfacial circular crack in cylindrically anisotropic composites. Using the theory of analytical functions, a general solution based on a complex variable displacement function is obtained, which is similar to Lekhnitskii's stress potentials for rectilinearly anisotropic material. For some cases, the circular crack problems are reduced to Hilbert problems which are solved in a closed form. The first three-term asymptotic expansions of the near crack-tip stress field are given to identify the role of the curvature effect. The asymptotic solutions are further compared with exact solutions.

MSC:[74R99](#) Fracture and damage[74E30](#) Composite and mixture properties[74S30](#) Other numerical methods in solid mechanics (MSC2010)Cited in **4** Documents**Keywords:**

theory of analytical functions; complex variable displacement function; Lekhnitskii's stress potentials; Hilbert problems; asymptotic expansions; near crack-tip stress field; curvature effect

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