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压电材料平面应力状态的直线裂纹问题一般解

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摘要　研究了含直线裂纹系的压电材料平面应力问题　单个裂纹和双裂纹问题的封闭解答表明，在裂纹尖端，应力、电场强度和电位移有 1／2 阶的奇异性　并与前人结果比较了产生电场奇异性的物理因素

关键词　　压电介质　线裂纹　平面应力问题　强度因子　封闭解

分类号

A GENERAL SOLUTION OF THE PLANE STRESS PROBLEMS IN PIEZOELECTRIC MEDIA WITH LINE CRACKS

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Abstract

 Considering continuous boundary condition of electric field at the cracks, a general solution of the plane stress problems in piezoelectric media with line cracks is provided by using function of complex variable and solving Riemann-Hilbert problems Solution in closed form and field intensity factors are given for problems of a single crack and two cracks It is shown from the solution that the stresses and electric field intensity and electric displacement have (1/2) type of singularity at the crack tip...

Key words 　piezoelectric media　line crack　plane stress problem　intensity factor　solution in closed form

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