

含双周期裂纹的一维六方准晶电弹性全平面应变基本问题

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Title: Fundamental electro-elastic complete plane strain problem of a one-dimensional hexagonal quasi-crystal with a doubly periodic set of cracks

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摘要: 针对电极化方向沿准周期方向的情况, 讨论了周期平面内含双周期裂纹的一维六方准晶的电弹性全平面应变第一基本问题和第二基本问题。根据力的叠加原理, 将三维的应力系统分解为线性独立的两组二维应力状态; 运用复应力函数方法将弹性平衡状态的求解归结为求解正则型积分方程, 并证明了其唯一可解性。结果表明: 一维六方准晶双周期断裂问题在广义双周期边界条件下的力学解是存在并且唯一的。此结果为运用各种方法研究该基本问题的正确性和一致性提供了理论保证。

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