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压电陶瓷场致疲劳特性与机理研究进展

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摘要 压电陶瓷的场致疲劳是材料性能在外加循环载荷作用下逐步退化的现象, 是导致其失效的主要因素, 近年来一直是国内外的研究热点. 本文综合分析了压电陶瓷在电场, 多场耦合(力-电-温度)作用下的疲劳机理和影响因素, 并对压电陶瓷场致疲劳的未来研究方向进行了展望.

关键词 压电陶瓷 场致疲劳 力电耦合 电畴

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Research Progress on the Characteristics and Mechanism of Applied Field-Induced Fatigue in Piezoelectric Ceramics

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Abstract Being considered as a dominant factor for its failures, the field-induced fatigue of piezoelectric ceramics is a gradual degradation of piezoelectric properties under applied cyclic loading and becomes a hot topic in the world in recent years. The fatigue mechanisms and influential factors of piezoelectric ceramics under applied electric field or multi-fields (stress-electric-temperature) were reviewed in this paper. Furthermore, the development trends in this area were proposed too.

Key words piezoelectric ceramics field-induced fatigue stress-electric coupling electric domain

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