

陶瓷材料,分析了  $\text{Fe}_2\text{O}_3$  掺杂量对陶瓷微结构、压电以及介电性能的影响。随着  $\text{Fe}_2\text{O}_3$  掺杂量增加,陶瓷样品晶粒尺寸呈先增大后减小变化趋势;同时,  $d_{33}$  和  $\epsilon_r$  也有相似变化趋势。当  $\text{Fe}_2\text{O}_3$  掺杂量为 0.8% 时,陶瓷样品获得最优电学性能:  $d_{33}=520\text{pC/N}$ ,  $k_p=0.51$ ,  $\epsilon_r=4768$ ,  $\tan\delta=0.026$ 。本研究,一方面通过微波烧结方法显著降低烧结时间,为今后开展微波烧结工艺制备 PZT 基陶瓷材料奠定基础;另一方面开发了一种铁掺杂 PNN-PZT 陶瓷材料,初步掌握成分-微结构-性能之间关系。

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## · 科学共同体介绍 ·

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