

Fabrication of Periodic Graphene-Like Structure of Zinc Oxide Piezoelectric Device

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Abstract : This study proposes a fabrication of phononic-crystal acoustic wave device. A graphene-like atomic structure was adopted as the main research subject, and a graphene-like structure was designed using piezoelectric material zinc oxide and its periodic boundary conditions were defined using the finite element method. The effects of a hexagonal honeycomb structure were investigated regarding the band gap phenomenon. The use of micro-electromechanical systems process technology to make the film etched micron graphics, designed to produce four kinds of different piezoelectric structure (plat, periodic, single defect and double defects). Frequency response signals and phase change were also measured in this paper.

Keywords : MEMS, phononic crystal, piezoelectric material, Zinc oxide

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