



Abstract

High piezoelectric constant Mn:PIN-PMN-PT and High-Q applications

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3rd piezoelectric single crystals Mn:PIN-PMN-PT have the disadvantage of reduced piezoelectric coefficient properties compared to 2nd piezoelectric single crystals. In this study, we achieved a high piezoelectric coefficient ($d_{33} > 2000$) through domain engineering and used it to fabricate an 8 x 8 2D probe.

We also discuss the feasibility of fabricating a transmitting and receiving acoustic sensor for synthetic aperture sonar (SAS) on unmanned underwater vehicle (UUV) that can utilize the high Q value of the 3rd piezoelectric single crystal.

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