

Abstract : Piezoelectret films, with a controlled ordered microstructure and various porosities, were fabricated by using a patterning-fusion bonding method. The polarization in the films with various porosities is investigated. The results show that the critical applied bias voltage for the breakdown in the inner voids is dependent on the porosity in the films. The threshold voltages for the polarization in the fabricated films with the porosities of 0, 25 and 44% are around 4000, 2000 and 2000 V, respectively. The piezoelectric d_{33} coefficients are enhanced by increasing the applied bias voltage during polarization.