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PZT Films Fabricated by Metal Organic Decomposition Method
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High quality lead zirconate titanate films have been fabricated on different substrates by metal organic decomposition method and their ferroelectric properties have been investigated. Main attention was paid to studies of the influence of the buffer layer with conditional composition $Pb_{1.3}(Zr_{0.5}Ti_{0.5})O_3$ on the properties of $Pb(Zr_{0.5}Ti_{0.5})O_3$ films fabricated on the polycrystalline titanium and platinum substrates. It is found that in the films on the Pt substrate (with or without the buffer layer) the dependencies of the remanent polarization and the coercivity field on the number of switching cycles do not manifest fatigue up to 10^9 cycles. The remanent polarization dependencies for films on the Ti substrate with the buffer layer containing an excess of PbO demonstrate an fundamentally new feature that consists of a remanent polarization increase after 10^8 switching cycles. The increase of remanent polarization is about 50% when the number of cycles approaches 10^{10}, while the increase of the coercivity field is small. A monotonic increase of dielectric losses has been observed in all cases.

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