

Magnetic field control of electric-field-induced local domain growth in manganites

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Abstract

© 2016 Taylor & Francis Group, LLC. ABSTRACT: Local charged states have been induced at the surface of lanthanum strontium manganite single crystals as result of the local bias application by a conducting atomic force microscope tip. The piezoelectric contrast is observed in these states pointing to the existence of a local polar state. The induced charged states relax with characteristic time constant of about 50–100 hours at room temperature. Charge and size of the created structures increase significantly if the induction occurs in a magnetic field. It indicates the tendency of manganites toward charge segregation stimulated by the magnetic ordering.

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Keywords

low-doped manganites, Magnetoelectric effect