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(54) **ULTRAHIGH DENSITY FERROELECTRIC STORAGE AND LITHOGRAPHY BY HIGH ORDER FERROIC SWITCHING**

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(52) **U.S. Cl.** **385/147**; 369/126

(58) **Field of Classification Search** 369/126
See application file for complete search history.

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(57) **ABSTRACT**

A method for switching the direction of polarization in a relatively small domain in a thin-film ferroelectric material whose direction of polarization is oriented normal to the surface of the material involves a step of moving an electrically-chargeable tip into contact with the surface of the ferroelectric material so that the direction of polarization in a region adjacent the tip becomes oriented in a preselected direction relative to the surface of the ferroelectric material. The tip is then pressed against the surface of the ferroelectric material so that the direction of polarization of the ferroelectric material within the area of the ferroelectric material in contact with the tip is reversed under the combined effect of the compressive influence of the tip and electric bias.

3 Claims, 5 Drawing Sheets

