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Abstract

Flexible magneto-electric nanocomposite films for possible non-volatile memory applications

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Abstract:
The cutting edge age of information stockpiling innovation carries new difficulties to existing materials for low force information handling, dependable, quick and sizable exchange of data1. In this specific situation, artificial multiferroic composites dependent on ferromagnetic (FM) and ferroelectric (FE) stages that display solid magnetoelectric coupling, hold guarantee for planning new age memory gadgets with a few favorable circumstances. Multiferroic composites offer creative methodologies for non-unpredictable memory gadgets when contrasted with their semiconductor based competitors2. The natural slim recollections are especially ideal because of their current circumstance well disposed nature, low creation cost and mechanical flexibility3. Here, a room temperature worldview two level nonvolatile memory activity have been exhibited by using the nonlinear magnetoelectric impacts in adaptable multiferroic SmFeO3/P(VDF-TrFE) nanocomposite films. Strain instigated interface communications among ferromagnetic and ferroelectric stages in SmFeO3/P(VDF-TrFE) nanocomposite films permit electric field controlled polarization conduct. The indication of magnetoelectric coupling coefficient () for the composite movies can be more than once exchanged among positive and negative by applying electric fields. This can be utilized to store twofold data for non unpredictable memory gadgets. The magnetoelectric reaction and the necessary voltage for exchanging of can be tuned by changing the attractive stage division (SmFeO3 nanoparticles) in nanocomposite films. Consequently, adaptable magnetoelectric SmFeO3/P(VDF-TrFE) nanocomposite films can be used for nonvolatile memory applications with down to earth qualities, for example, basic reduced structure, simple perusing/composing activity, quick speed and low force utilization.

Biography:
Anju Ahlawat (Ph.D - Physics), is DST Faculty at Laser and Functional Materials Division, Raja Ramanna center for advanced technology (RRCAT), Indore (India). She has got her B.Sc and M.Sc in Physics. She had awarded her Doctor's degree (Ph.D.) in Physics from UGC -DAE Consortium for scientific research, Indore (India) in 2012. She has received a prestigious research award from DST inspire Faculty in 2014. She has 7 years research experience from RRCAT, Indore, India. Currently Dr. Ahlawat's research focus is on multiferroic magneto electric nanostructures for memory applications. She has published 30 papers in reputed journals.

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