

Abstract Submitted  
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**Magnetolectric properties of a bilayer of magnetostrictive and piezoelectric nanofilm- studies on substrate pinning effects**<sup>1</sup> GOPALAN SRINIVASAN, Oakland Univ., V.M. PETROV, Novgorod State University, Russia — A model is presented for magnetolectric (ME) effects in the electromechanical resonance region (EMR) for bilayers of magnetostrictive and piezoelectric films on a substrate. The clamping effect of the substrate has been considered in determining the ME voltage coefficient for longitudinal (or radial) and bending modes. The ME effect is predicted to be weak due to pinning and is dependent on the substrate volume. It is shown that the dependence of ME effect on the substrate thickness is much weaker for bending modes than for radial or longitudinal modes. For increasing volume of the substrate, the EMR frequency decreases dramatically. In the case of a rectangular nickel ferrite-PZT nanobilayer on an MgO substrate, the EMR frequency is predicted to be minimum when the substrate is clamped at one end.

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