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Unusual resonant response in [Fe(001)/Cr(001)]₁₀/ MgO(001) magnetic multilayers in magnetic field VLADIMIR PRYADUN, FARKHAD ALIEV, Departamento de Fisica de la Materia Condensada, Universidad Autonoma de Madrid, Spain, ETIENNE SNOECK, Groupe NanoMateriaux, CEMES-CNRS, Toulouse, France — We report on experimental observation of unusual electromotive resonances in [Fe/Cr]₁₀ multilayers epitaxially grown on MgO(001) substrates and measured by using balanced excitation and detection schemes. Electric voltage resonances with quality factor exceeding 10³ induce strong enhancement of Hall resistance for specific frequencies. Surprisingly, the continuum mechanics model for suspended Fe/Cr layers accounts well for the observed phenomena. Cross-sectional electron microscopy analysis of the multilayers confirms that we could be dealing with non-suspended nanoelectromechanical system.

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