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**Unusual resonant response in [Fe(001)/Cr(001)]<sub>10</sub>/ 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]<sub>10</sub> multilayers epitaxially grown on MgO(001) substrates and measured by using balanced excitation and detection schemes. Electric voltage resonances with quality factor exceeding  $10^3$  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.

Farkhad Aliev  
Universidad Autonoma de Madrid, Spain

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