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Giant oscillations of coupling strength on Mo/Si multilayers with the constant thickness of semiconductor layers

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Abstract

We report the observation of anisotropy ratio γ and interlayer coupling strength oscillations with variation of metal layer thickness on Mo/Si multilayer series with constant Si layer thickness. These oscillations correlate with previously found oscillations of TC, R_{300}/R_n and $dH_{c\perp}/dT$. The giant amplitude of γ oscillations makes one to believe that all oscillation effects are due to the variation of the Josephson coupling strength. Possible origin of these unusual effects is discussed.