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Spin Polarized Transport in Multilayer Structures with Complex Magnetic Configurations[1] AVAG SAHAKYAN , ANAHIT POGHOSYAN, RUZAN MOVSESYAN, The State Engineering University of Armenia, Teryan St. 105 Yerevan-0009, Armenia, ARMEN KOCHARIAN, Physics Department, California State University — The spin transport and spin polarization in a new class of multilayer structures are investigated for non-collinear and noncoplanar magnetic configurations containing repetitive magnetic layers. The magnetic configuration of the structure dictates the existence of certain degrees of freedom that determines magnetic transport and polarization properties. We consider magnetic structures in magnetic multilayers with canted spin configurations separated by non-magnetic quantum well so that the exchange interaction between the neighbor barriers can be ignored. Configurations of magnetizations in barriers include some structures consisting of two "ferromagnetic" or "antiferromagnetic" domains twisted relative to each other by a certain angle (angle noncollinearity). The similar system, formed from two noncollinear domains separated by canted "magnetic defect" is also considered. The above mentioned properties of these systems depend strongly on the type of magnetic configuration and variation of certain degrees of freedom. Simple theoretical approach with the transfer matrix method is carried out to understand and predict the magnetic properties of the multilayer systems.

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