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One-dimensional scattering of electrons and neutrons in nano heterostructures with magnetic inclusions AVAG SAHAKYAN, RUZAN MOVSESYAN, The State Engineering University of Armenia, Teryan St. 105 Yerevan-0009, Armenia, ARMEN KOCHARIAN, Department of Physics, California State University, Los Angeles, CA 90032, USA — The spin dependent scattering of electrons and neutrons in one dimension is investigated in systems, containing a nano size magnetic layers. Two thin systems are considered such as: a) magnetic layer with non magnetic surrounding and b) two magnetic layers divided by non magnetic layer or non magnetic surrounding. Magnetization of layers, in general, contains longitudinal and transverse components (parallel and perpendicular to the interface, respectively). It is shown that the Zeeman energy splitting of longitudinal component caused by magnetic field provides modulation of partial scattering amplitude for transmitted and reflected waves. On the other hand, the transverse field can have perceptible contribution into the backward and forward scattering phase. The latest provided an opportunity to manage continuously the scattering energy for resonance transmission. In particular, for electron system this modulation can be manifested in behavior both, conductance and reflectance.

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