

Surface Magnetic Effects in an Alternating Superlattice

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Z. Naturforsch. **64a**, 753 – 757 (2009); received May 5, 2008 / revised December 22, 2008

We investigate the surface magnetism of the alternating superlattice with localized spin-1/2. Using the mean-field approximation method, we discuss not only the correlation between the critical value j_{0C} of the exchange constant in the surface layer and interlayer exchange constants, but also the connection between j_{0C} and the bulk exchange constant j_A . The calculated results are in good agreement with the former theoretical calculations. Based on the solutions, we show the relations between the critical parameter $c = J_S/J_A$ and the bulk exchange constants as well as the surface transition temperature. J_S is the exchange constant in the first two surface layers. Comparing with the earlier theoretical works, our results show the effect of the surface modification more gradual.

Key words: Surface Transition; Alternating Magnetic Superlattice.