Superconductor Science and Technology 2002 vol.15 N2, pages 285-289

Ferromagnet/superconductor superlattices as logical devices with two recording channels

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Abstract

For the ferromagnetic metal/superconductor (FM/S) superlattices, the new π magnetic states with antiferromagnetic ordering of the FM layers magnetizations are predicted. If the S layers thickness ds is less than the threshold value ds π, these new states have a higher critical temperature Tc than the earlier known ferromagnetic states (the 0 magnetic states). Therefore, the Tc oscillations origin at ds < ds π is due to the transitions cascade between the 0-π-0 types of superconductivity at π magnetism conditions. A new type of logical device combining the advantages of the superconducting and magnetic recording channels in one sample is offered on the FM/S superlattices base.

http://dx.doi.org/10.1088/0953-2048/15/2/319