



LUDWIG-
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MÜNCHEN

ARNOLD SOMMERFELD
CENTER FOR THEORETICAL PHYSICS



Sommerfeld Theory Colloquium

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Odd Triplet Superconductivity and Related Phenomena in Superconductor-Ferromagnet Structures

Novel unusual effects in superconductor-ferromagnet (S/F) heterostructures are considered. The main attention is paid to the triplet component of the superconducting condensate generated in these systems due to the presence of the ferromagnet. This component is odd in frequency and even in the momentum, which makes it insensitive to non-magnetic impurities. The triplet component is not destroyed even by a strong exchange field and can penetrate the ferromagnet over long distances. In its turn, the ferromagnet moment can be induced in the superconductor on distances of the order of the superconducting coherence length, which may be classified as inverse proximity effect. The penetration of the magnetic moment into the superconductor can reduce the magnetic moment, thus providing one more mechanism of the screening in addition to the Meissner effect. A comparison of the theoretical predictions with existing experiments is made.

Wednesday, 12th November 2008, 10:45 h, Room 348 / 349, Theresienstr. 37 / III