



506th ASRC Seminar

Date: 15:00 ~, 8 March

Location: Meeting room 302, ASRC Building

Speaker: Dr. Dirk Manske
(Max Planck Institute)

Title: Novel Josephson effect in triplet
Josephson junctions

In the theoretical study of Josephson junctions, it is usually assumed that the properties of the tunneling barrier are fixed. This assumption breaks down when considering tunneling between two triplet superconductors with misaligned d-vectors in a TFT-junction (tripletSC-ferromagnet-tripletSC). Such a situation breaks time-reversal symmetry, which radically alters the behaviour of the junction, stabilizing it in a fractional state, i.e. the free energy minimum lies at a phase difference intermediate between 0 and π . Fractional flux quanta are then permitted at the junction. A further consequence of the d-vector misalignment is the appearance of a Josephson spin current, which flows even in the absence of an equilibrium charge current. Not only do our calculations enhance the physical understanding of transport through triplet superconductor junctions, but they also open the possibility of novel spintronic Josephson devices.



<Contact>

Michiyasu Mori (81-3508)

Advanced Science Research Center

