

Bar Ilan University , Condensed Matter Seminar

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Spin superfluidity

Abstract:

The problem of dissipationless spin transport (spin superfluidity) has occupied the minds of condensed matter physicists for decades. The interest to this problem revived nowadays in connection with the emergence of spintronics. It was in the past, and still is, a matter of controversy. One source of controversy is that spin is not a conserved quantity. This leads to many complications and ambiguities in defining such concepts as spin current, or spin transport. Sometimes these complications are purely semantic, but they can be and were a serious obstacle for understanding physics and for deriving proper conclusions concerning observation and practical application of the phenomenon. The talk will address these problems, connection of spin superfluidity with magnon BEC among them.