

2006 年 夏学期 第三回 物性セミナー

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題目 "Bell Inequalities and condensed matter experiments"

日時 2006 年 5 月 19 日 (金) 午後 4 時 30 分

場所 16 号館 827

■アブストラクト

We present an elementary introduction to the concept of non-locality in quantum mechanics. After describing the basic concepts we outline the CHSH form of Bell Inequalities and describe how they have been violated experimentally to date (Aspect et al). We will then describe several theoretically possible proposals for measuring violations of Bell Inequalities in condensed matter systems, for the first time using "massive" particles. These proposals include Cooper Pair in mesoscopic normal-superconductor systems (Samuelsson et al, 2003, Chitchev et al, 2002), electron-hole scattering systems using edge states (Beenakker et al, 2003), and two interacting charge double quantum dots (Lambert et al, 2006).

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