

ELECTRON AND HOLE DYNAMICS AT SURFACES

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A fundamental concept in condensed matter physics is the notion of quasiparticle, an elementary excitation of an interacting Fermi liquid. The interaction between quasiparticles limit how long the corresponding quantum states retain their identity: a quasiparticle is said to have a lifetime, which sets the duration and, in combination with the velocity, the range of influence of the excitation. The influence of spin-orbit and spin flipping is discussed. A new way to reach the attosecond level is presented.