

Isosbestic Points and Kinks: Fingerprints of Electronic Correlations

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A family of non-monotonic curves, obtained by plotting a quantity $f(x, y)$ as a function of one of its variables for different values of the other, will in general intersect, leading to crossing points of the curves. In physics, chemistry and biology the crossing of a family of curves is the rule rather than the exception. Sometimes these crossing points are found to be confined to a remarkably narrow region, or are even located at a single point [1], thus leading to a conspicuous feature often called *isosbestic point* [2,3]. For example, crossing points are observed in the curves of the specific heat $C(T, P)$ vs. temperature T of normalfluid ^3He [4]; they are also found within a phenomenological description of this phase in terms of the Gutzwiller approximation [5]. I will show that isosbestic points can provide valuable information about characteristic properties, e.g., energy scales, of correlated systems [6,3]. The same holds for kinks in the effective dispersion of correlated electron systems. A novel, purely electronic mechanism [7] leading to kinks will be discussed, which does not rely on the coupling of electrons to excitations and which is able to explain current experiments [8].

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