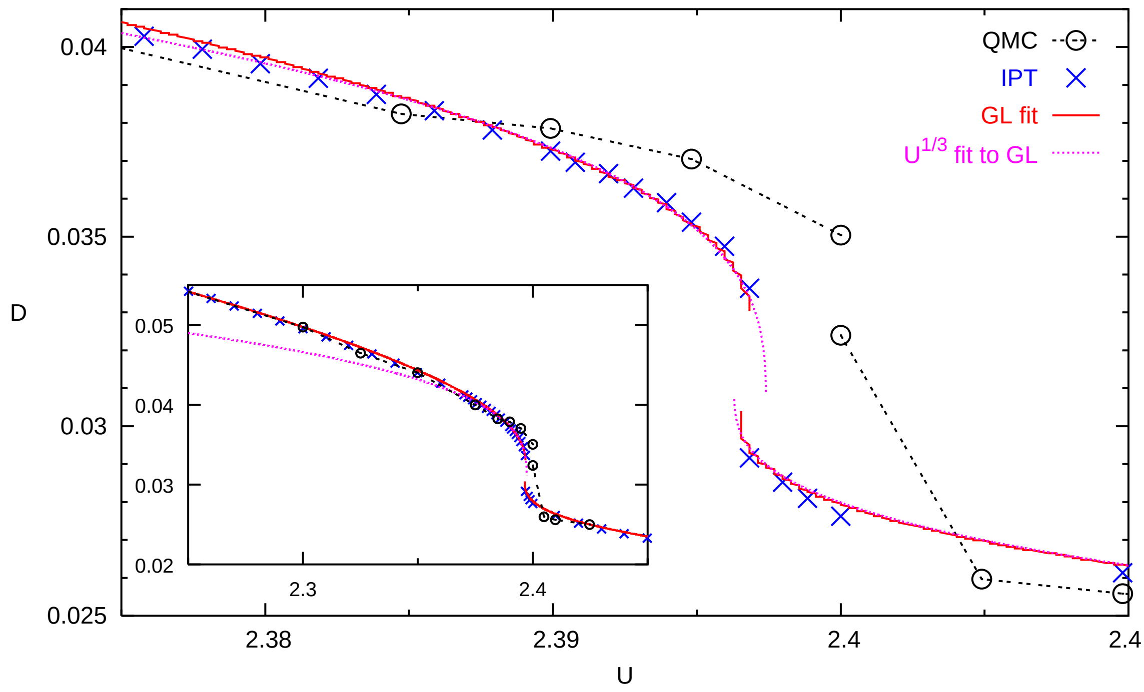

Figure 3.60: Double occupancy D versus U for $T \lesssim T^*$. Magnified view on top set of curves/circles shown in the main panel of Fig. 3.59 (Kotliar et al., 2000). In addition to the QMC data (circles) and IPT data (here: crosses) and to the Ginzburg-Landau fit (solid line), an asymptotic cubic-root fit (dotted lines) to the Ginzburg-Landau fit for the metallic IPT solution is shown. Interactions are in units of the half bandwidth.

important observation is that the slope of the QMC estimates for D in the metallic phase is only slightly enhanced, but shows no signs of divergence near the transition. For the insulating phase, an enhanced slope is only suggested by a single data point in the coexistence region. The agreement of QMC data with the remaining data is poor, considering that the comparison arises from a two-parameter fit. As a second observation, we note relatively strong discrepancies between IPT data and GL fits, even close to the transition. Furthermore, strong deviations from the asymptotic cubic-root behavior (dotted line in inset of Fig. 3.60) of the GL fit appear already below about $U \approx 2.35$.

In contrast, square-root fits show excellent agreement with the IPT results, both for the metallic and the insulating phase as shown in Fig. 3.61 and Fig. 3.62, respectively. Although the shape of each of these fits (dashed lines) is determined by a single parameter (in addition to the end point coordinates D_c and U_c) instead of at least two parameters for the GL fits, the deviation of the square-root fits from the IPT data is typically almost an order of magnitude smaller than that of the GL fits (with cubic-root asymptotics). We conclude that the critical exponent 1/3 derived by Kotliar et al. (2000) is either wrong even at the critical point or that the critical behavior at the second order end point is different from the critical behavior of co-existing solutions near their stability edge. In any case, we have established that the