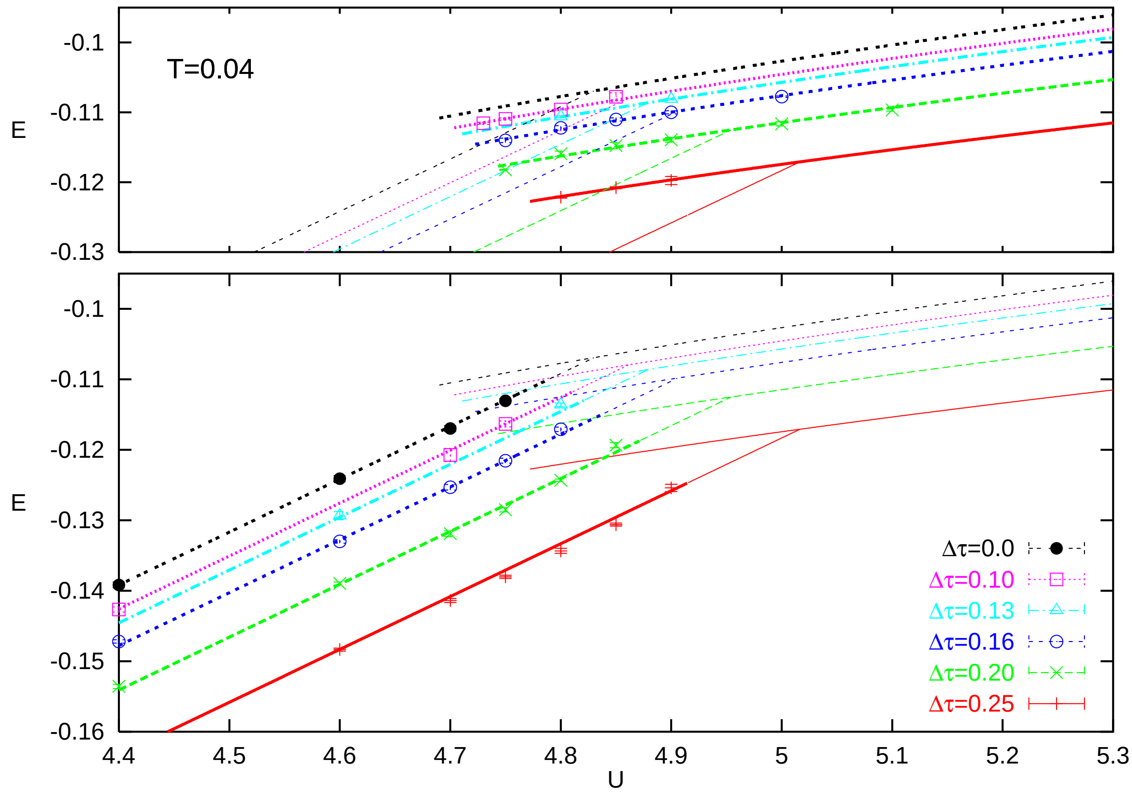

Figure 3.25: Total energy for $T = 1/25$, analogous to Fig. 3.24.

the QMC solution of the impurity model, i.e., by using more sweeps. Therefore, we attribute most of the visible deviations between the QMC data and the fit functions to remaining numerical errors.

For $T = 0.04$, the coexistence region is already much wider (in comparison with $T = 0.05$) as is apparent from Fig. 3.25. The linear dependence of E on U in the metallic phase clearly extends far into the coexistence region. The data points shown at the edges of the stability regions were only computed with high enough accuracy to verify their stability. Since our top priority was the accurate determination of the first-order phase transition line (which is not directly influenced by this data), additional available numerical resources were only spent for a selected set of temperatures.

The temperature $T = 0.031$ (i.e., $\beta = 32$) is already low enough that the extent of the coexistence region is large even on our usual grid with steps of $\Delta U = 0.1$ or $\Delta U = 0.05$. On the other hand, the temperature is still high enough that (on vector machines and supercomputers), a larger number of simulations could be run even for the smallest discretization regularly used in our study, $\Delta\tau = 0.1$. Therefore, we have chosen this temperature for a careful analysis within and near the edges of the stability regions of both metal and insulator. The impressive agreement with our fit curves (which are fixed for the insulator and adapted only for the metal) is clearly seen in Fig. 3.26. The data shown here in connection with data for parameter points