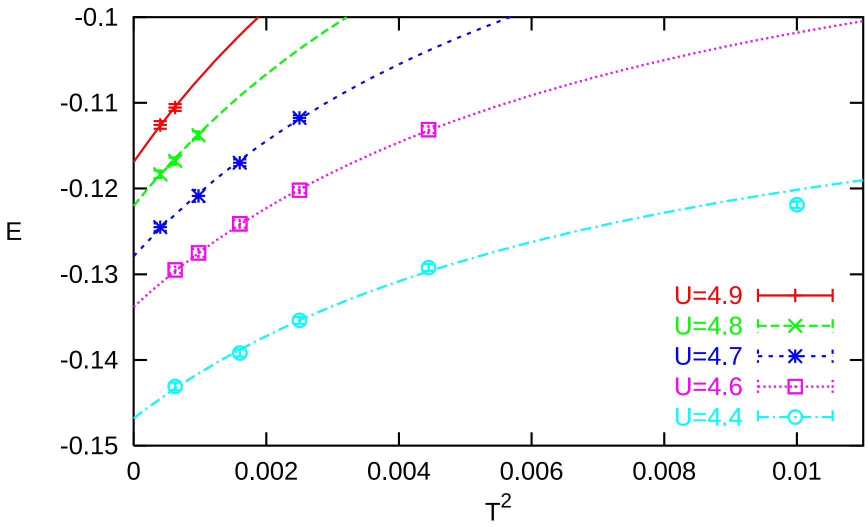


**Figure 3.46:** QMC estimates for the energy $E$ at low temperatures (at $\Delta\tau = 0$) vs. $T^2$ (symbols) and extrapolation $T \to 0$ (lines). The slope at $T = 0$ gives an estimate of one half of the linear coefficient in the specific heat, $\gamma$.

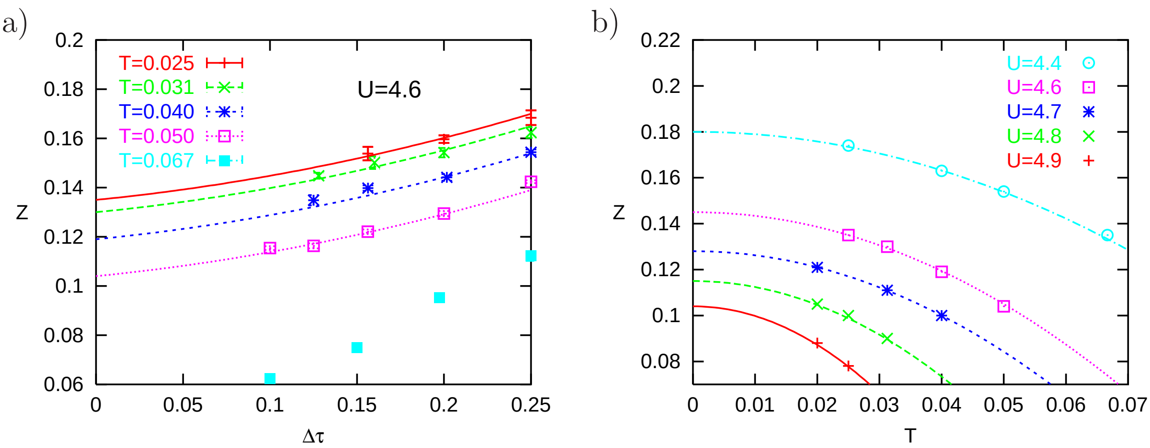


**Figure 3.47:** Extrapolation of quasiparticle weight $Z$, **a)** for $\Delta\tau \to 0$ and **b)** for $T \to 0$.

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Since the discrete estimate (3.6) for $Z$ becomes exact for $T \to 0$, the QMC computation of $Z$ at low $T$ and its extrapolation to $T = 0$ is well-conditioned. The first step of a QMC estimate, however, the extrapolation to $\Delta\tau = 0$ has to be performed with care as we illustrate for $U = 4.6$ in Fig. 3.47 a. Clearly, the QMC data at finite $\Delta\tau$ (symbols) shows a regular dependence on $\Delta\tau$ behavior only at small enough $T$, sufficiently far below the MIT. Furthermore, numerical noise makes a reliable determination of the extrapolation law difficult, especially at small $T$ (where less accurate data for small $\Delta\tau$ is available). We found that for a large range of $U$ and $T$ a fixed extrapolation law $Z(T, U, \Delta\tau) \approx Z(T, U) + 0.07\,\Delta\tau + 0.28\,\Delta\tau^2$ is sufficiently accurate. The resulting QMC estimates for $\Delta\tau = 0$, shown in Fig. 3.47 b (symbols), may be