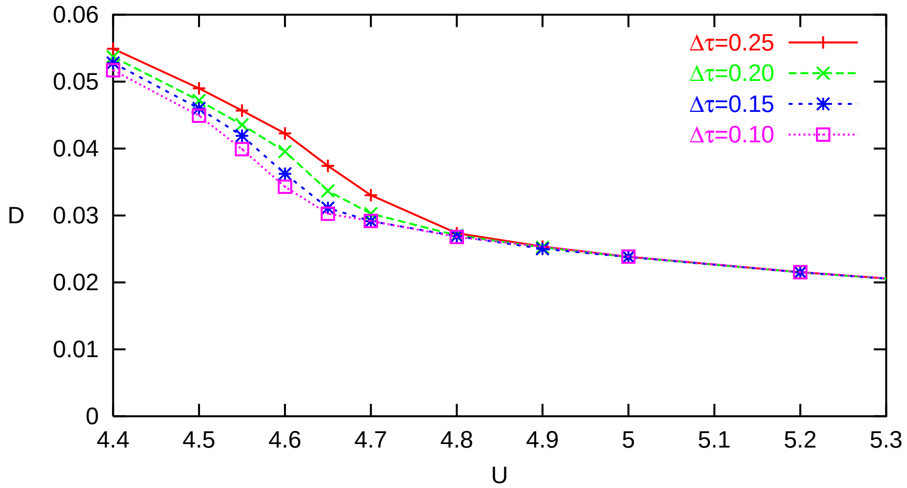

Figure 3.15: Double occupancy for $T = 1/15$ as a function of interaction U for various values of the imaginary time discretization parameter $\Delta\tau$. Lines are guides to the eye only.

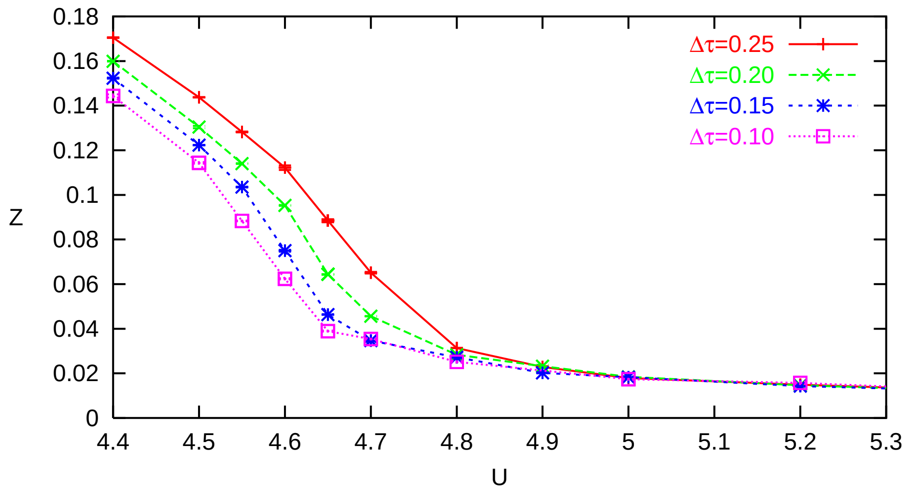

Figure 3.16: Discrete estimate for the quasiparticle weight Z for $T = 1/15$. Lines are guides to the eye only.

effective mass in the metal diverges as $m^*/m = 1/Z$ for $Z \to 0$ so that $Z = 0$ defines the MIT. As discussed in subsection 3.2.3, however, Z cannot be associated with a physical quasiparticle weight at finite temperatures very near to or beyond the MIT. In fact, it is seen in Fig. 3.16 that the (discrete) QMC estimates for Z remain finite even for $U \gtrsim 5$. Again, the $\Delta\tau$ error is quite irregular: it is significant only on the metallic side and maximal in the transition region $U \approx 4.6$.

The potential energy $E_{\text{pot}} = UD$ and the kinetic energy E_{kin} are presented in Fig. 3.17 a and Fig. 3.17 b, respectively. Obviously, our above remarks on the general shape and on the $\Delta\tau$ error of D directly carry over to E_{pot}. In comparison, the