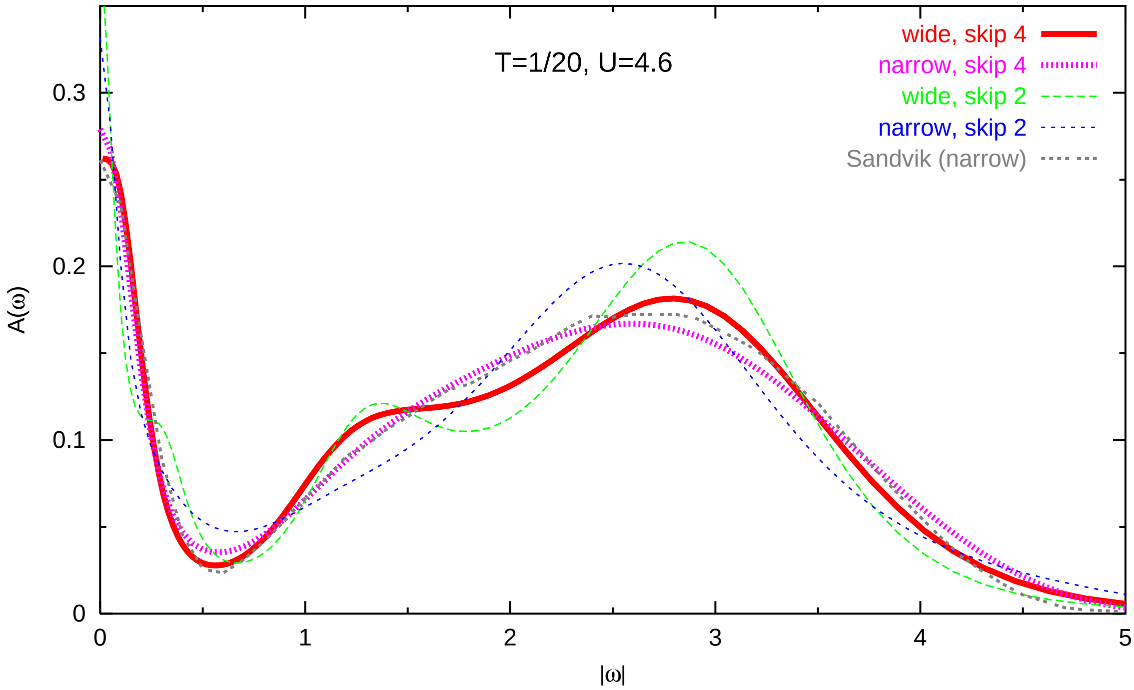

Figure 3.73: Local spectral function $A(\omega)$ for $T = 1/20$ and $U = 4.6$: MEM results obtained using Jarrell's program in connection with a wide or a narrow default model (cf. Fig. 3.71). In order to eliminate unphysical oscillations in the imaginary time, only every 4^{th} (thick lines) or every 2^{nd} time slice (thin dashed lines) is used for the analysis, the rest is skipped. A result of Sandvik's method (double-dashed line; cf. Fig. 3.72) is included for comparison.

---

of the MEM procedure is then reestablished. The longer-range oscillations visible in the difference shown in the main panel of Fig. 3.74 is also unphysical; this is seen from the presence of local maxima and minima of the (smoothed) second derivative $\mathrm{d}^2\bar{G}(\tau)/\mathrm{d}\tau^2$ shown in the inset of the same figure.

Since Sandvik's MEM scheme treats the time slices as being independent, it is not directly susceptible to the short-range oscillation. Still, the associated underestimation of errors at small τ (where the statistical errors are very small in the symmetric case) may negatively impact the results. For this reason, the computed statistical error is adjusted throughout this section by adding $2 \cdot 10^{-5}$ to $\Delta\bar{G}_l$ for all odd time slices l; the resulting zig-zag shape of the error estimate was already shown as a red line in the inset of Fig. 3.72. Using a larger error increment for the time slices with odd index (putting also a lower bound on the relative error estimate) (short-dashed line in the same figure) only leads to minor modification of the spectrum which demonstrates the robustness of our approach.