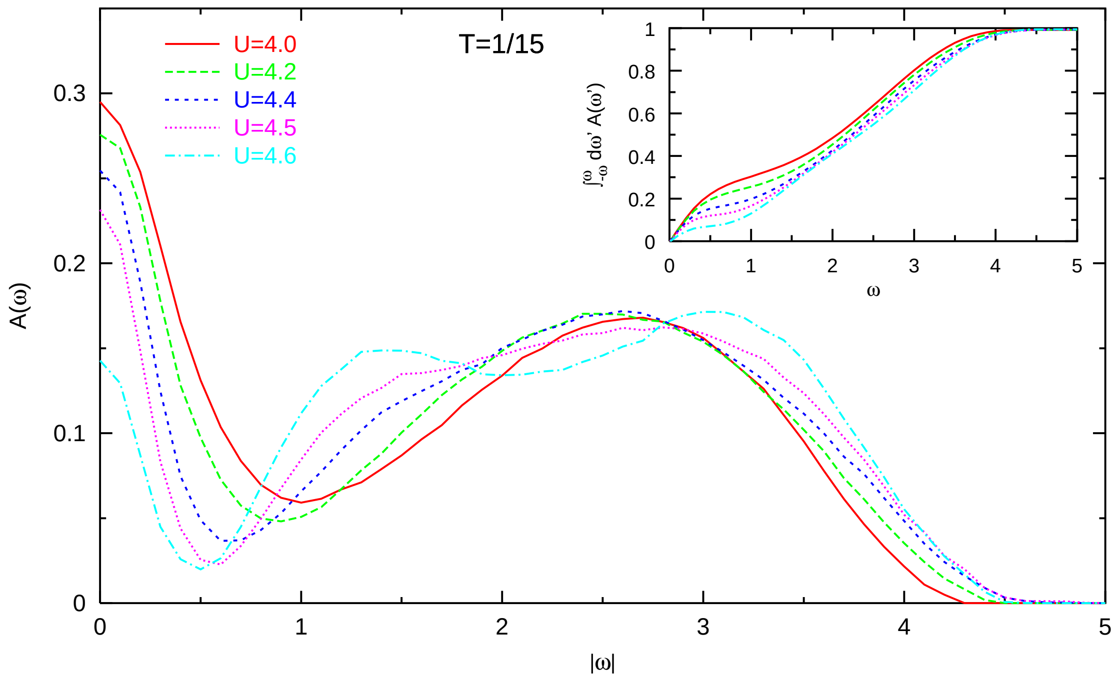


**Figure 3.81:** Local spectral function of the half-filled Hubbard model with semi-elliptic DOS for $d \to \infty$ in the paramagnetic metallic phase at $T = 0.067$: QMC/MEM result for $\Delta\tau = 0.1$ using a flat default model. Inset: integrated spectral weights.

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Jarrell near $\omega \approx 0$. However, significant weight is predicted in the "forbidden" region $|\omega| > (U+W)/2 = 2+U/2$ for all interactions $U$. Furthermore, we regard the height of the peaks seen for $U = 5.2$ at $|\omega| \approx 1$ and the degree of their separation from the main peaks at $|\omega| \approx 3$ as artifacts. We attribute the higher reliability of our results primarily to a much larger investment in computer time.

NRG spectra for the significantly lower temperature $T = 0.041$ are reproduced in Fig. 3.83 b (Bulla et al., 2001). According to this method, the quasiparticle peak disappears quite abruptly at the MIT. Note, however, the significant deviations from Luttinger pinning (at $4\,\rho(0) = 1.27$) close to the MIT even at this lower temperature. A slight tendency towards formation of a shoulder is seen for $U/W = 1.22$; due to the increasingly bad resolution of the NRG at large frequency, however, this feature is not significant. The extended high-frequency tails are clearly artifacts of the logarithmic discretization (which requires corresponding broadening of all results).

The main results of this section are the construction and test of a robust scheme for computing MEM spectra of the $d = \infty$ Hubbard model and the spectra obtained for $T = 0.05$ shown in Figs. 3.77–3.80. The reliability of these results has been successfully tested for internal consistency, consistency with analytic bounds and consistency with previously published results. The spectra will pass further consistency checks when the self-energy is computed on the real axis in Sec. 4.6. An adapted MEM scheme will be applied to a 3-band model for $La_{1\text{-}x}Sr_xTiO_3$ in Sec. 5.4.