

4.6

$$\Delta W = \int_0^{\frac{2\pi}{\omega}} \sigma \cdot d\gamma = \int_0^{\frac{2\pi}{\omega}} \sigma \cdot \frac{d\gamma}{dt} \cdot dt$$

$$\gamma(t) = \gamma_0 \sin(\omega t)$$

$$\sigma(t) = \gamma_0 (G' \sin \omega t + G'' \cos \omega t)$$

$$\begin{aligned} \Delta W &= \omega \gamma_0^2 \int_0^{2\pi/\omega} (G' \sin \omega t \cos \omega t \\ &\quad + G'' \cos^2 \omega t) dt \\ &= \pi \gamma_0^2 G'' \end{aligned}$$