5.26   Two scattering mechanisms exist in a semiconductor. If only the first mechanism were present, the mobility would be 250 cm²/V-s. If only the second mechanism were present, the mobility would be 500 cm²/V-s. Determine the mobility when both scattering mechanisms exist at the same time.

Per (5.18), $\dfrac{1}{\mu} = \dfrac{1}{\mu_1} + \dfrac{1}{\mu_2}$.

$$\frac{1}{\mu} = \frac{1}{250} + \frac{1}{500} = 0.006 \quad \Rightarrow \quad \mu = 0.006^{-1} \qquad \Rightarrow \qquad \underline{\mathbf{\mu = 166.67\ cm^2/V\text{-}s}}$$