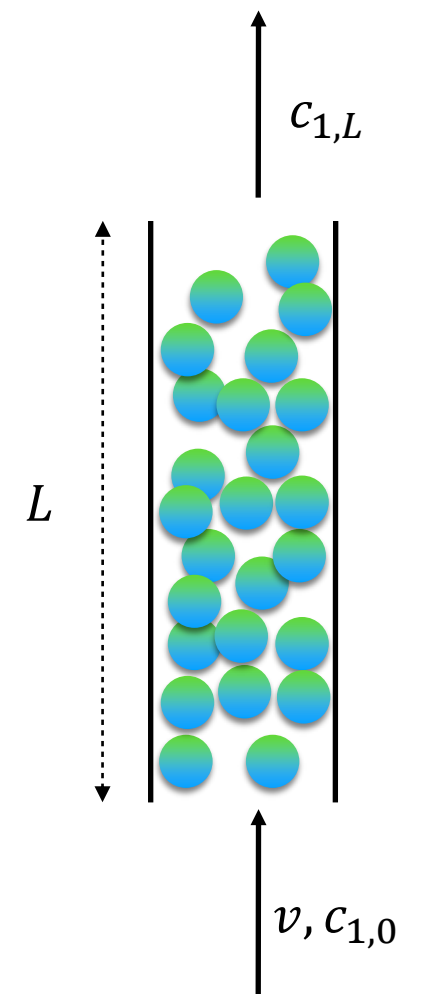
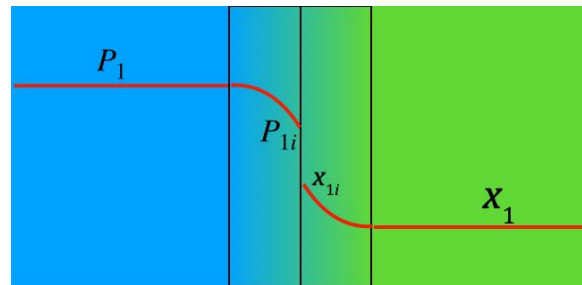


Exercise problem 1

Scrubbing problem

Ammonia in a carrier gas (air) is being scrubbed from the gas phase to a solvent in a packed tower. The interaction (absorption) of NH_3 with the solvent is extremely strong and irreversible. Calculate the concentration of ammonia as a function of column height.



Exercise problem 2

Overall mass transfer coefficient

A distillation column tray is contacting liquid benzene with its vapor. Bulk liquid and vapor mole fractions are 0.2 and 0.7, respectively. The equilibrium relationship, liquid-side and vapor-side mass transfer coefficients are given below.

Calculate the flux and interfacial mole fraction.

At interface, $y_{1i} = mx_{1i}$ $m = 2$ $k_x = 1 \frac{\text{mole}}{\text{m}^2\text{s}}$ $k_y = 1 \frac{\text{mole}}{\text{m}^2\text{s}}$