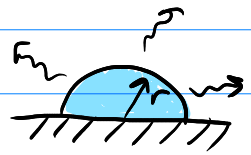
CHE 318 Lecture 05
Jan-21-2026

Continue examples for P.S.S in spheres

1) Compare if { solving $N_A(t) = const.$ ⇒
   { solving $N_A(t)$ = time dependent

2) Compare sphere & slab geometries

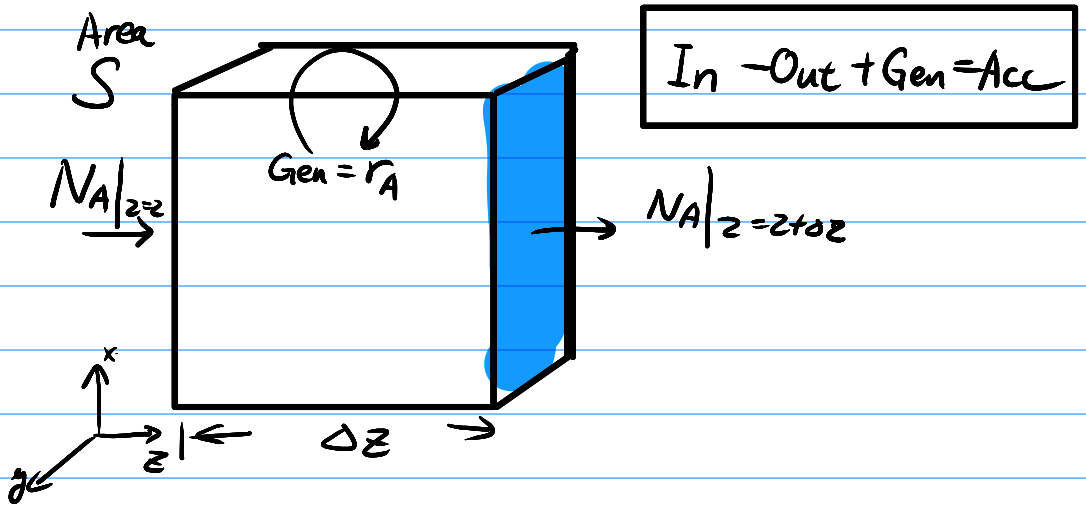
What if geometry is hemisphere? (evaporation of droplet on surface)



$$\frac{\bar{N}_A}{2\pi}\left(\frac{1}{r_1}-0\right) = \frac{D_{AB}\,P_T}{RT}\cdot\frac{1}{P_{Bm}}\left(P_{A1}-0\right)$$

Same principle but different coeff (2π vs 4π)

U.S.S mass transport



In − Out + Gen = Acc

Derivation of govern eqn

$$N_A|_{z=z} - N_A|_{z=z+\Delta z} = -\left(\frac{N_A|_{z+\Delta z} - N_A|_z}{\Delta z}\right)\cdot \Delta z$$

⇓ Def. of derivative

$$= -\frac{\partial N_A}{\partial z}\cdot \Delta z$$