

CHE 318 Lecture 08

Jan 21 - 2026

Step-by-step solutions please see handwritten notes to Lecture 07

Continue examples for P.S.S in spheres

1) Compare if solving $N_A(t) = \text{const.} \Rightarrow$

(solving $N_A(t) = \text{time dependent}$)

2) Compare sphere & slab geometries

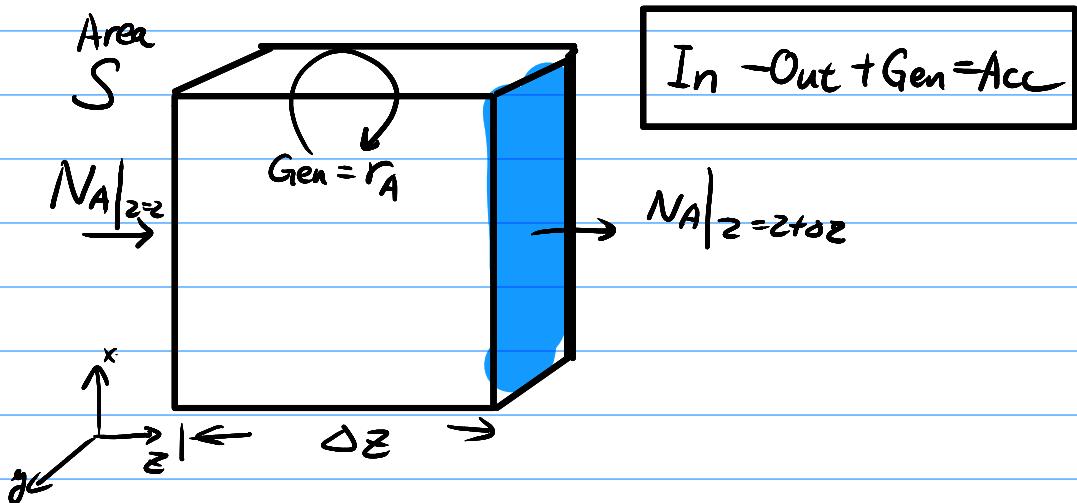
What if geometry is hemisphere? (evaporation of droplet on surface)



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

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

U.S.S mass transport



Derivation of govern eqn

$$\begin{aligned}
 N_A|_{z=0} - N_A|_{z=\Delta z} &= - \left(\frac{N_A|_{z=\Delta z} - N_A|_0}{\Delta z} \right) \cdot \Delta z \\
 &= - \frac{\partial N_A}{\partial z} \cdot \Delta z
 \end{aligned}$$

↓ Def. of derivative