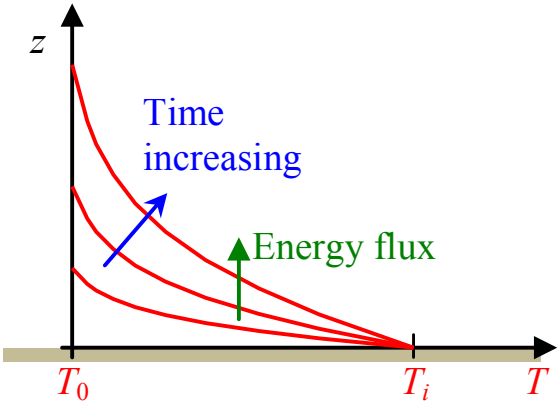
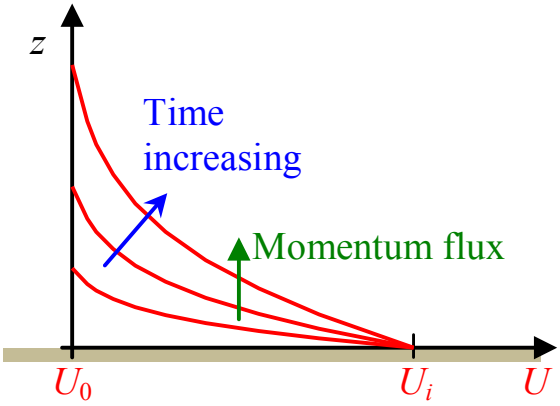
Today, we will:

- Discuss **gradient diffusion** and the **Reynolds analogy**

Reynolds Analogy – Energy, momentum, and mass, all diffuse in similar fashion. Compare:
Suddenly heated wall [$T = T_0 = 0^oC$ everywhere, then suddenly $T = T_i$ at the wall.]



Suddenly moving wall [$U = U_0 = 0$ m/s everywhere, then suddenly $U = U_i$ at the wall.]



Sudden removal of a membrane [$c_{molar} = c_{molar,0} = 0$ mol/m^3 everywhere, then suddenly $c_{molar} = c_{molar,i}$ at the location of the membrane, and the membrane disappears suddenly).]