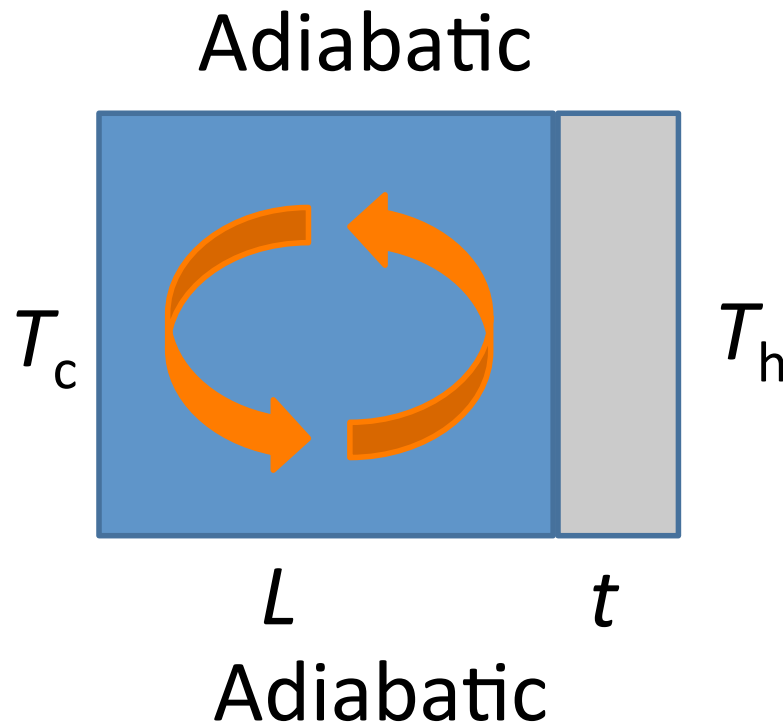


Conjugate heat transfer problem

Kaminski & Prakash, Int. J. Heat Mass Transfer (1986)



Condition

$$Pr = 0.7 \text{ (air)}$$

$$Gr = 10^3, 10^5, 10^6, 5 \times 10^6, 10^7$$

$$t/L = 0.2, 0.4$$

$$(k_w L)/(k_l t) = 5, 25, 50, \infty$$

$$N_x \times N_y = 40 \times 30$$

Results

Stream line, Isotherm

Temp. on solid-liquid interface

Local heat flux

Nusselt number

Current state

- Development of in-house fortran program
 - 2-D
 - SIMPLE
 - Uniform orthogonal coordinate
 - Boussinesq approximation
 - Harmonic average of diffusion coefficient
 - Domain was not divided.
- OpenFOAM solver (chtMultiRegionFoam) was not tested.