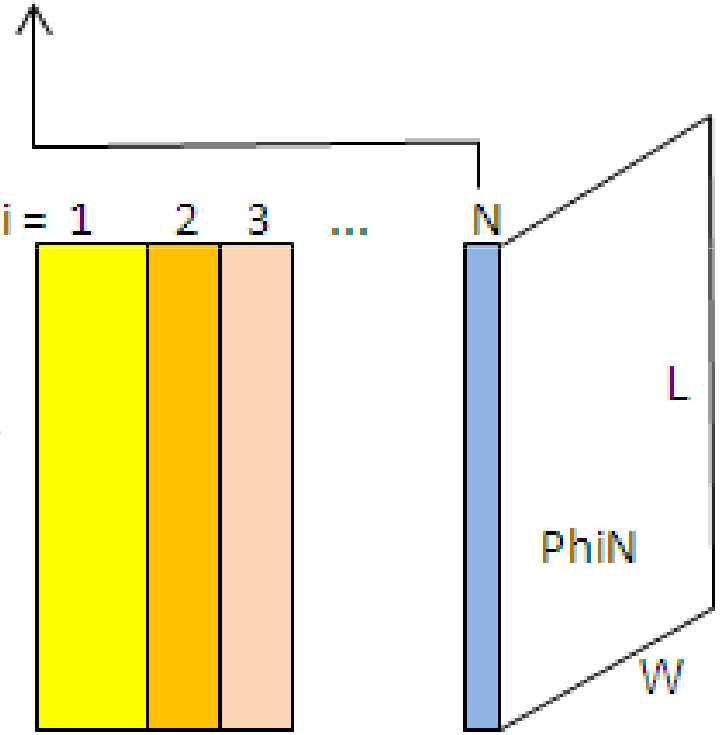
Conductive Heat Transfer

Quick Calculation for 1D Heat Flow

Conductive Heat Transfer: Composite Slabs

Q = 159.836 [W] 128.69|_____126.56|_____110.57|_____|83.93

HTR1(N,L,w,t1,t2,...,tn,k1,k2,...,kn,bc0,bcN,Phi0,PhiN,Ref0,RefN)



bc0=
1: Phi0 = T1
Ref0 = 0
2: Phi0 = h1
Ref0 = T0
3: Phi0 = q"

bcN=
1: PhiN = T1
RefN = 0
2: PhiN = ho
RefN = T2
3: PhiN = q"
RefN = 0

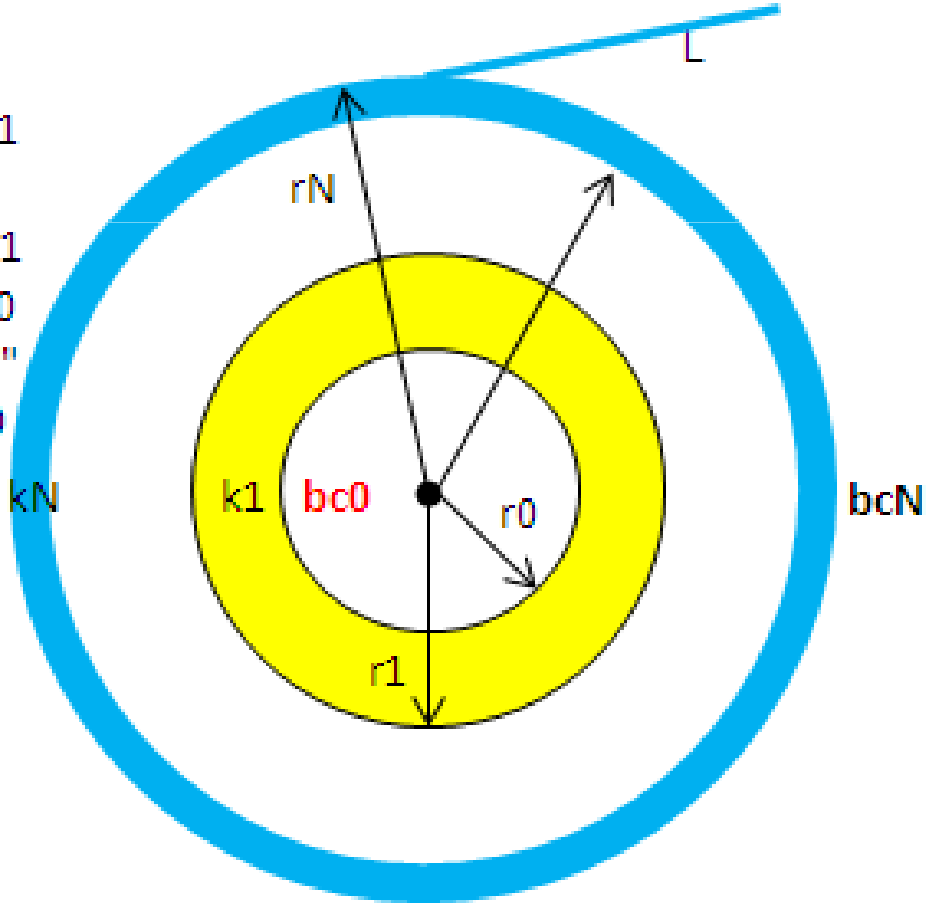
Q >0 = Left → Right
Q <0 = Right → Left

Conductive Heat Transfer: Composite Pipes

Q = 60.041 [W] 79.04|_____78.51|_____|33.49

HTR2(N,L,r0,r1,r2,...,rn,k1,k2,...,kn,bc0,bcN,Phi0,PhiN,Ref0,RefN)

bc0=
1: Phi0 = T1
Ref0 = 0
2: Phi0 = h1
Ref0 = T0
3: Phi0 = q"
Ref0 = 0



bcN=
1: PhiN = T1
RefN = 0
2: PhiN = ho
RefN = T2
3: PhiN = q"
RefN = 0

Q >0 = In → Out
Q <0 = Out → In

Features of the Program

- The number of slabs can be defined as function argument
- Use of consistent unit will yield consistent Heat Flow Rate and Temperature
- Temperature at interface also printed along with the Heat Flow Rate
- Boundary Conditions flag to choose between Specified Temperature Vs. Specified HTC.