Tube adjustments:

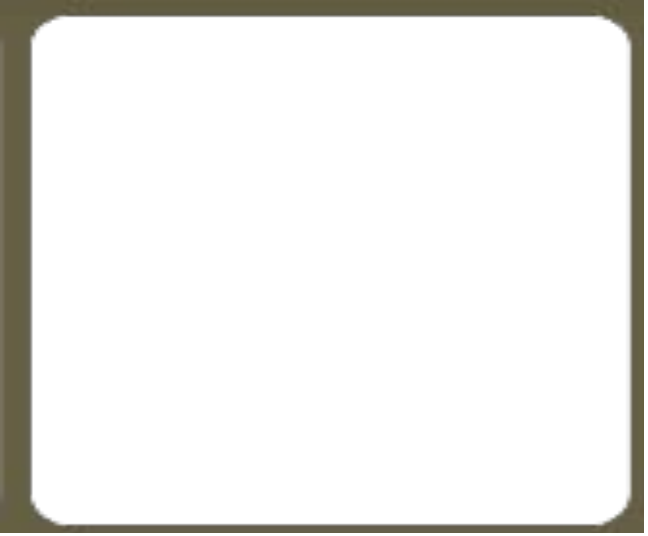
0.998 alpha_u 1.0 alpha_L

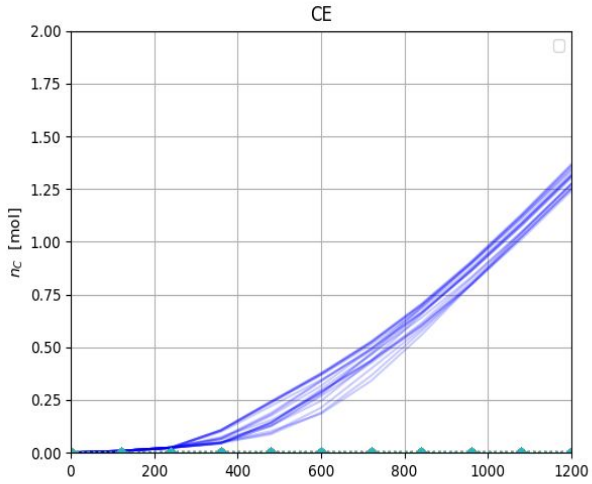
0.98 beta_u 1.0 beta_l

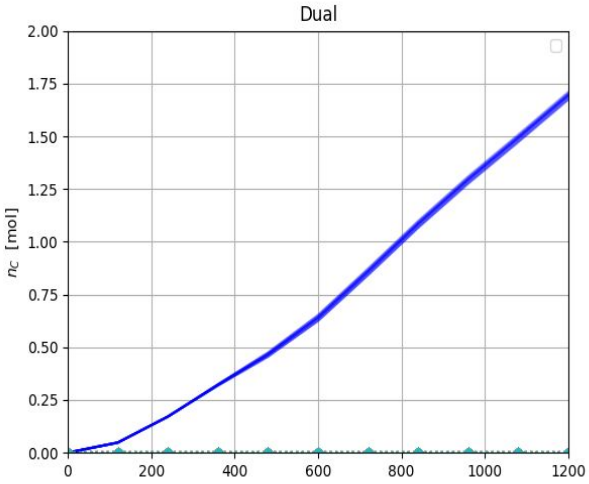
On state T and Inputs V_in

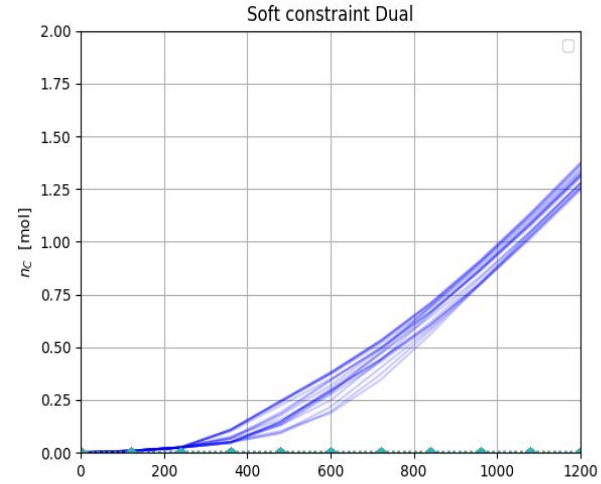
Wx for k:N-1=0 on all dual controllers

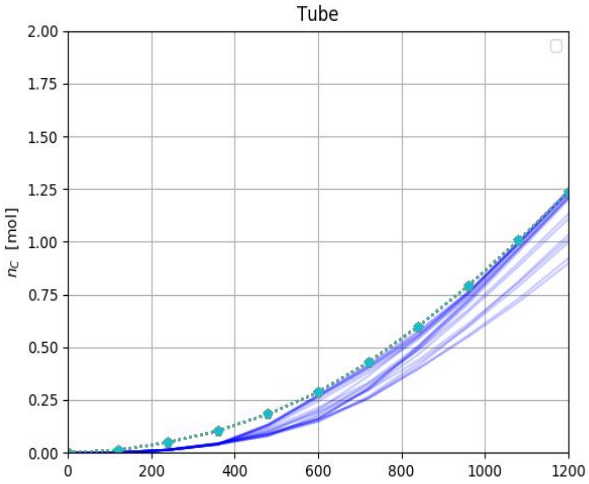
Violation penalty=10 for soft constraint

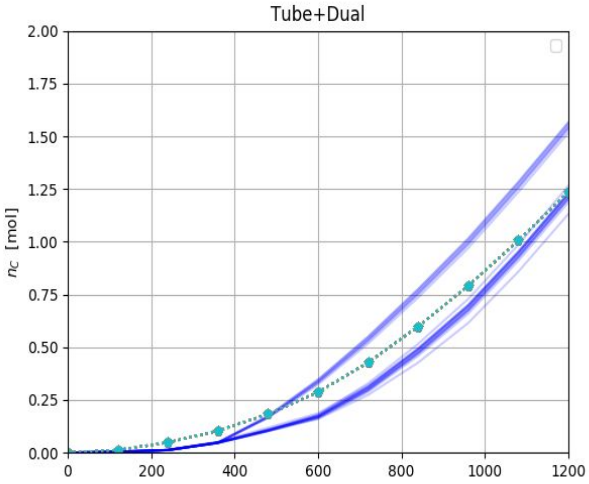


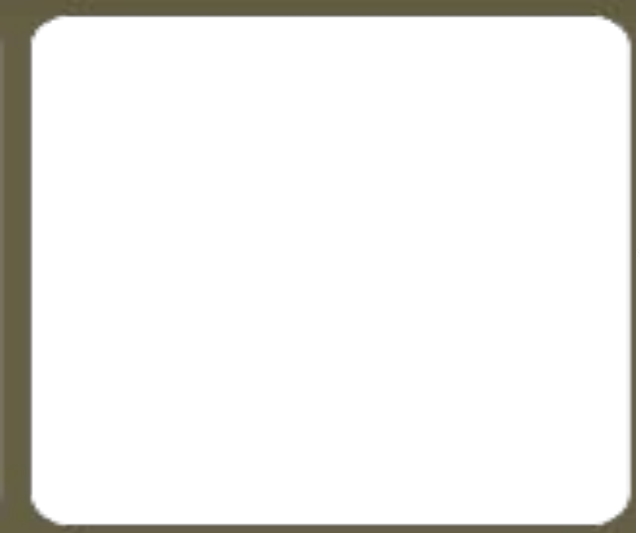

CE
n_C [mol]
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
0
200
400
600
800
1000
1200

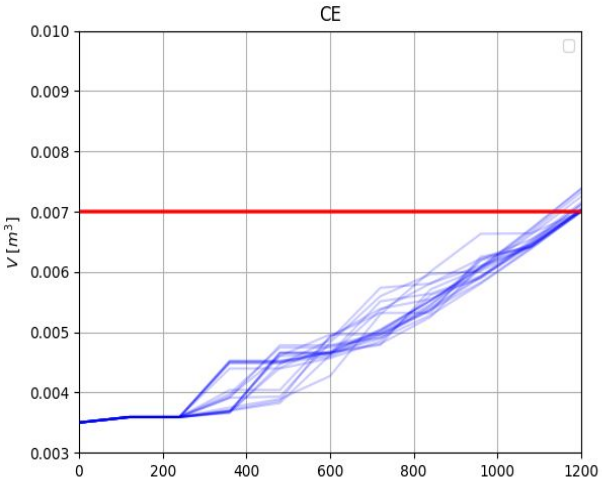

Dual
n_C [mol]
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
0
200
400
600
800
1000
1200

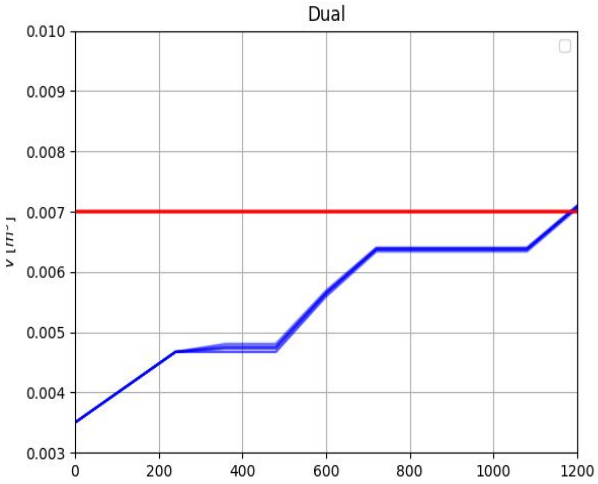

Soft constraint Dual
n_C [mol]
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
0
200
400
600
800
1000
1200

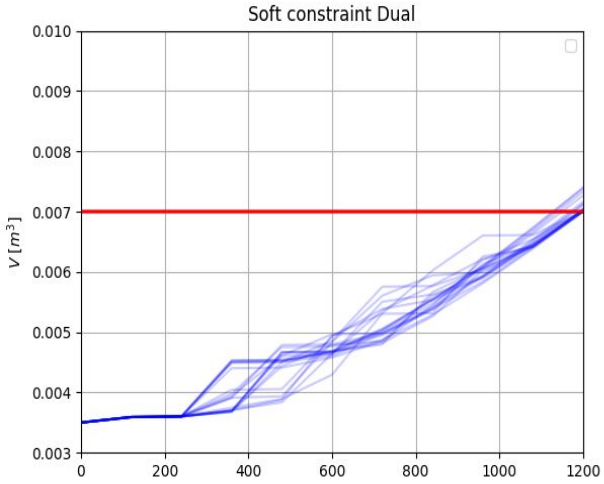

Tube
n_C [mol]
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
0
200
400
600
800
1000
1200

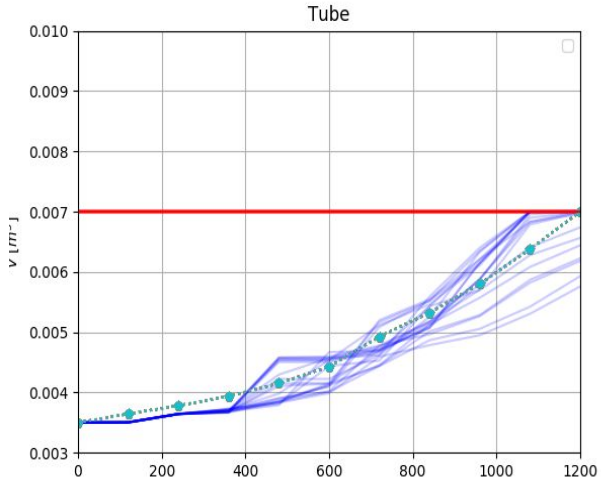

Tube+Dual
n_C [mol]
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
0
200
400
600
800
1000
1200

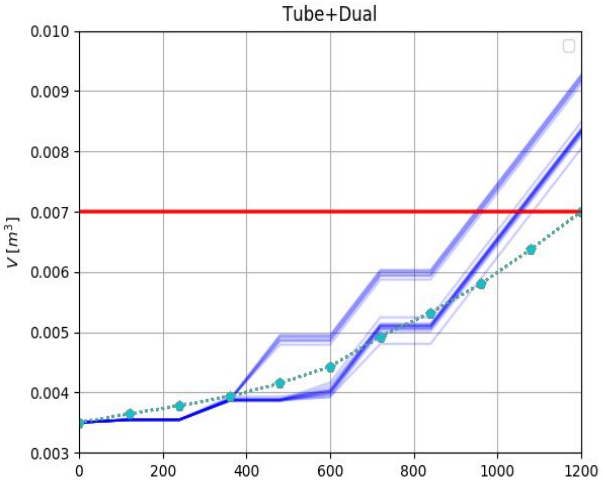


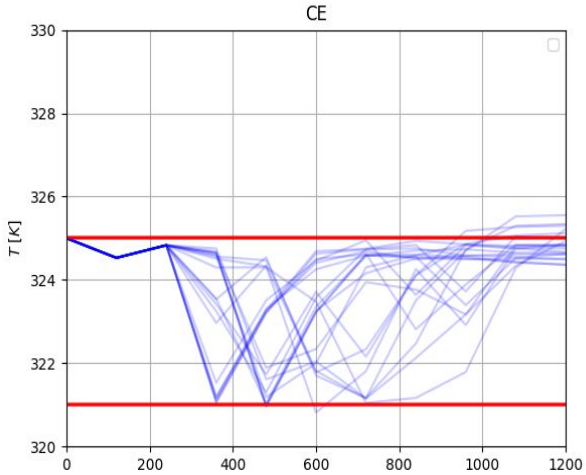

CE
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
V [m³]
0
200
400
600
800
1000
1200

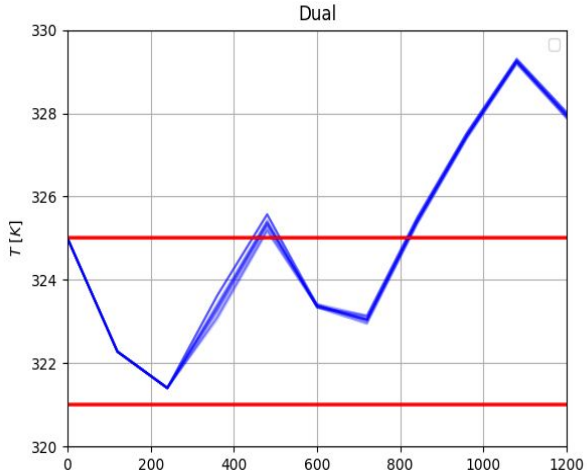

Dual
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0
200
400
600
800
1000
1200

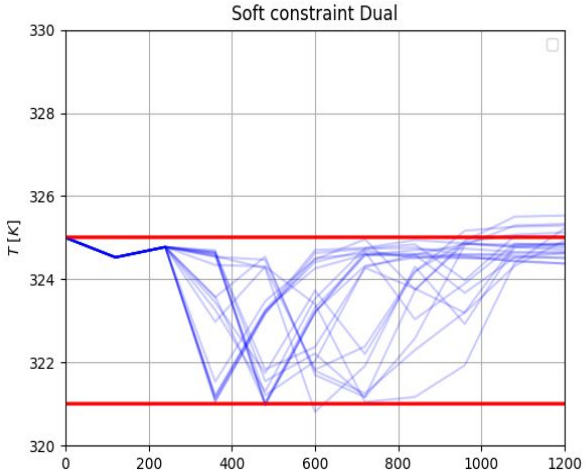

Soft constraint Dual
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
V [m³]
0
200
400
600
800
1000
1200

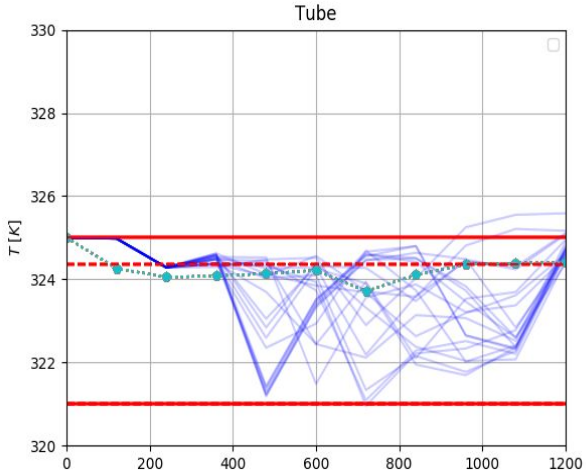

Tube
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0
200
400
600
800
1000
1200

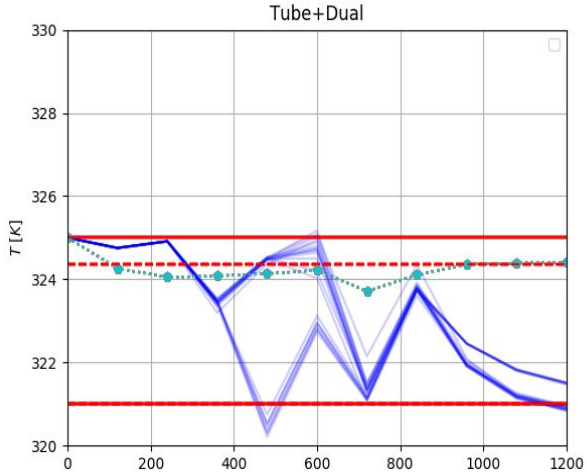

Tube+Dual
0.010
0.009
0.008
0.007
0.006
0.005
0.004
0.003
V [m³]
0
200
400
600
800
1000
1200

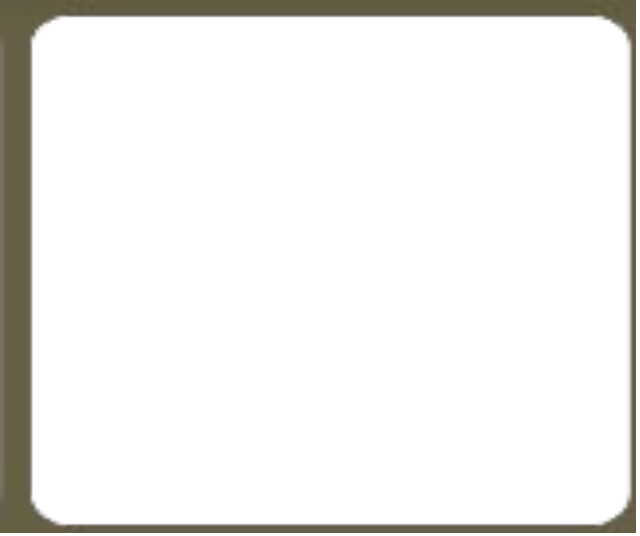

CE
T [K]
330
328
326
324
322
320
0
200
400
600
800
1000
1200

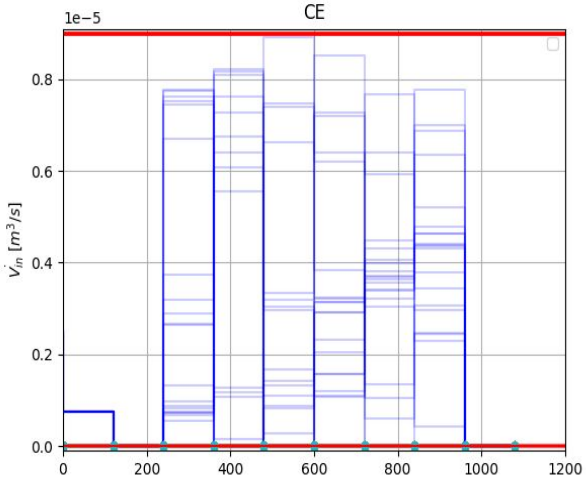

Dual
T [K]
330
328
326
324
322
320
0
200
400
600
800
1000
1200

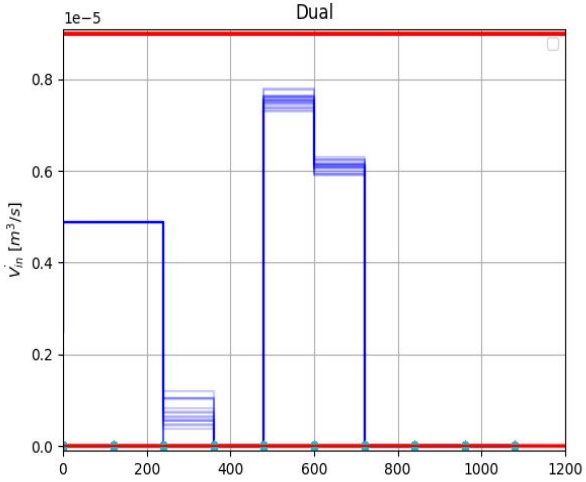

Soft constraint Dual
T [K]
330
328
326
324
322
320
0
200
400
600
800
1000
1200


Tube
T [K]
330
328
326
324
322
320
0
200
400
600
800
1000
1200

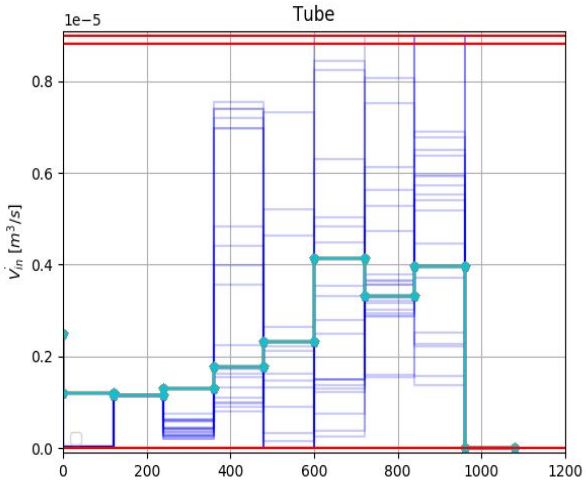

Tube+Dual
T [K]
330
328
326
324
322
320
0
200
400
600
800
1000
1200

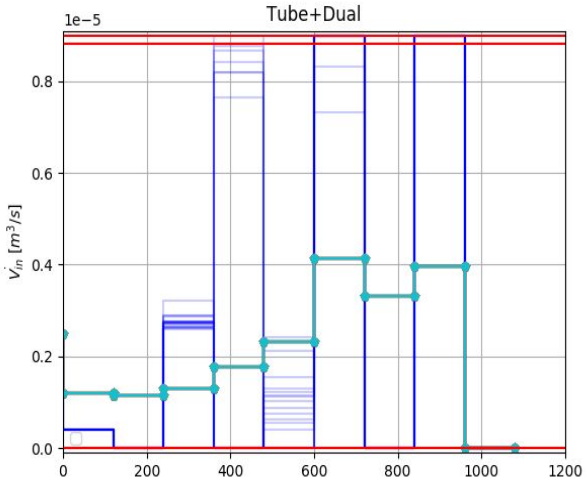


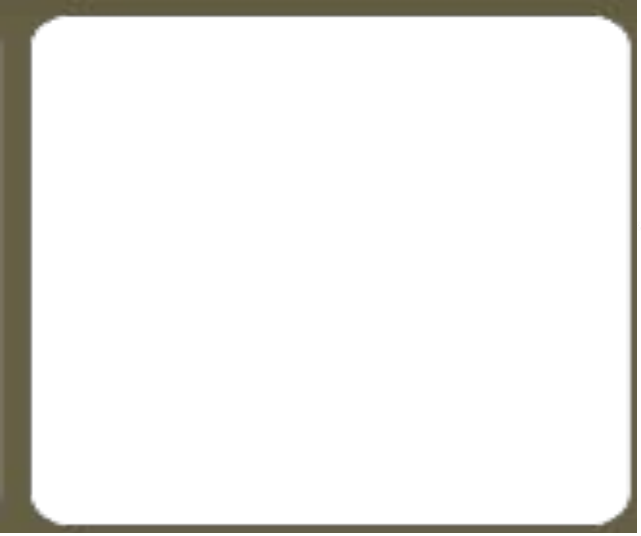

CE
1e−5
$\dot{V}_{in}$ [m^3/s]

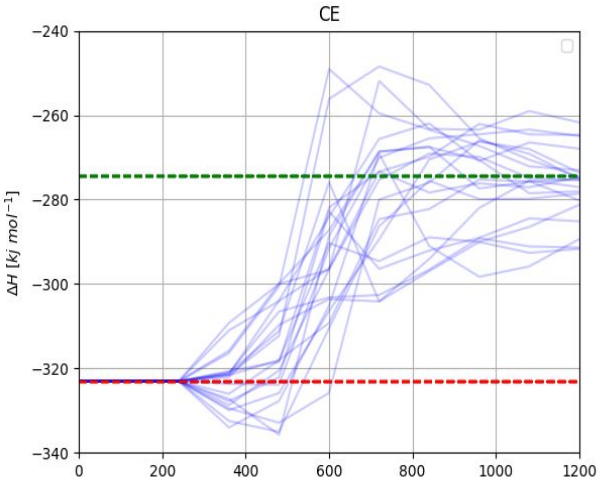

Dual
1e−5
$\dot{V}_{in}$ [m^3/s]

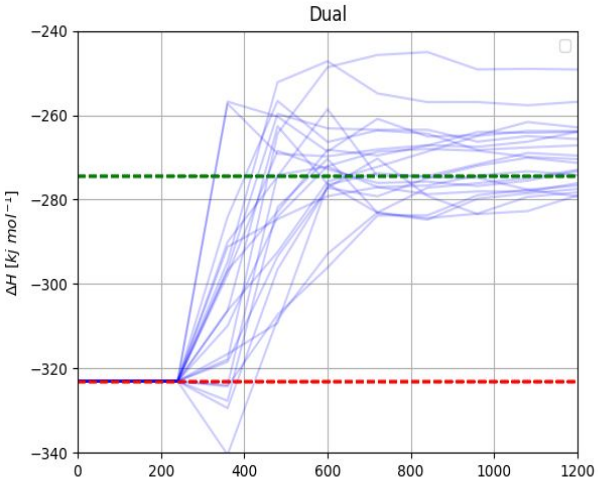
Soft constraint Dual
1e−5
$\dot{V}_{in}$ [m^3/s]

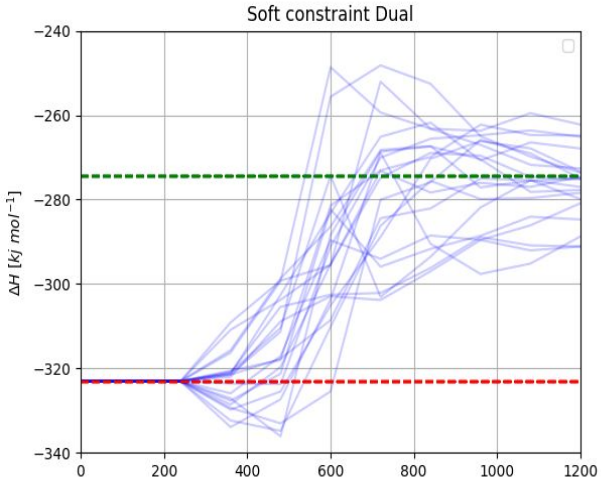

Tube
1e−5
$\dot{V}_{in}$ [m^3/s]

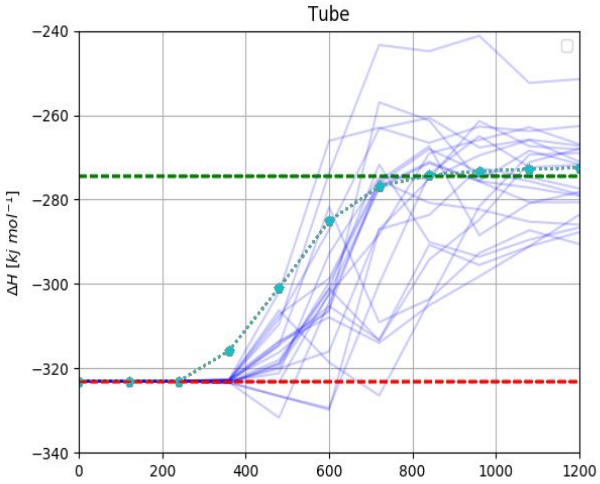

Tube+Dual
1e−5
$\dot{V}_{in}$ [m^3/s]

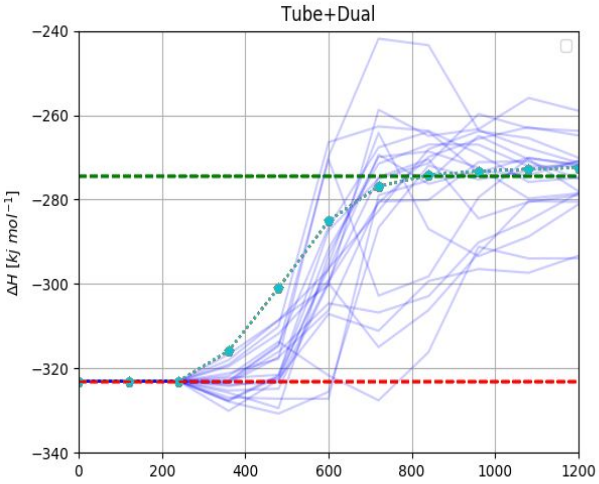


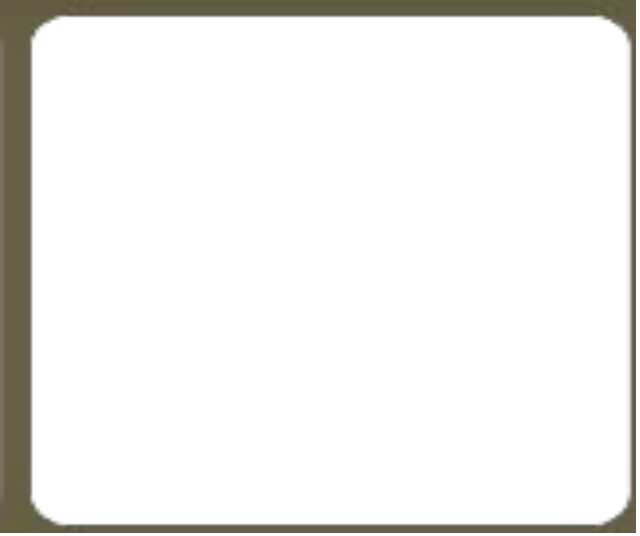

CE
ΔH [kj mol⁻¹]
−240
−260
−280
−300
−320
−340
0
200
400
600
800
1000
1200

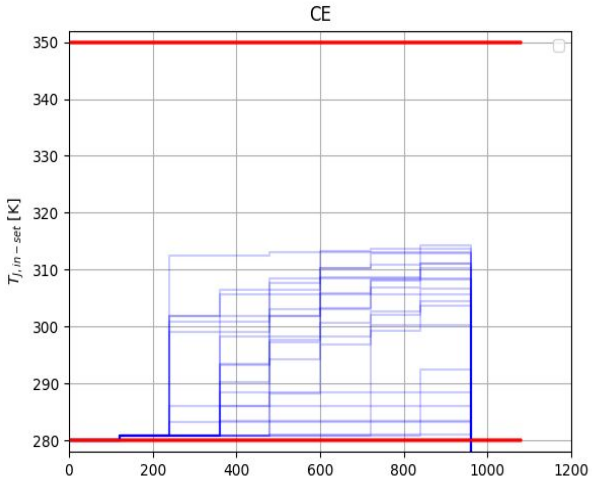

Dual
ΔH [kj mol⁻¹]
−240
−260
−280
−300
−320
−340
0
200
400
600
800
1000
1200

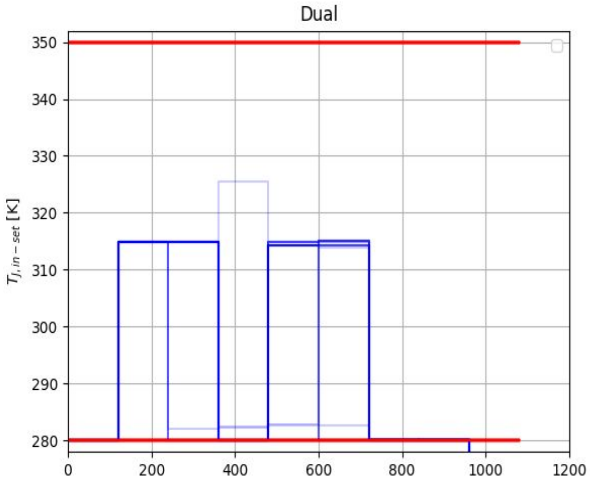

Soft constraint Dual
ΔH [kj mol⁻¹]
−240
−260
−280
−300
−320
−340
0
200
400
600
800
1000
1200

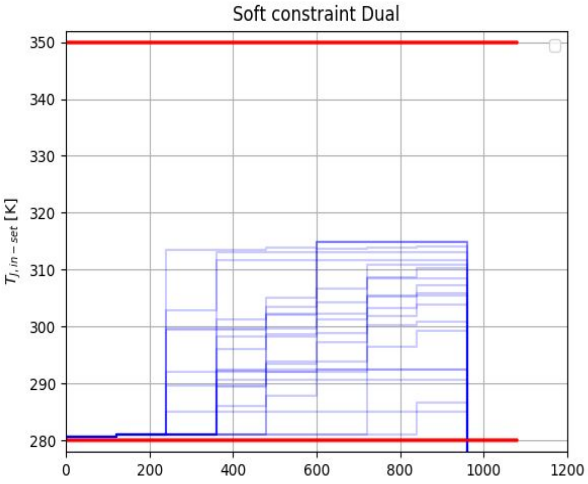

Tube
ΔH [kj mol⁻¹]
−240
−260
−280
−300
−320
−340
0
200
400
600
800
1000
1200

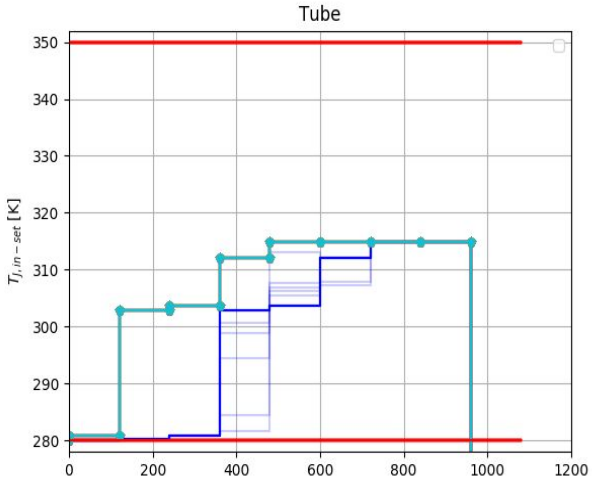

Tube+Dual
ΔH [kj mol⁻¹]
−240
−260
−280
−300
−320
−340
0
200
400
600
800
1000
1200

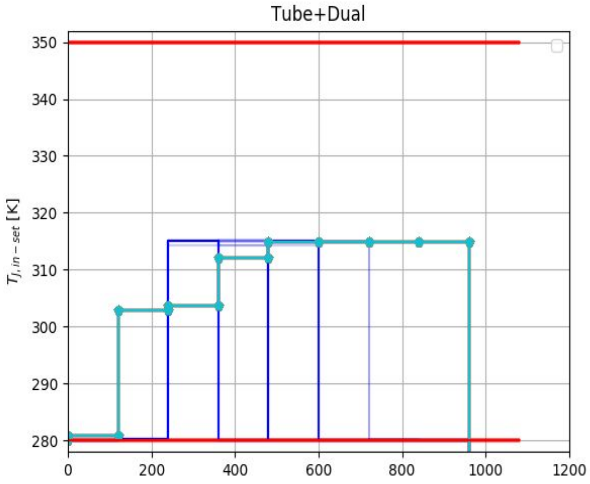


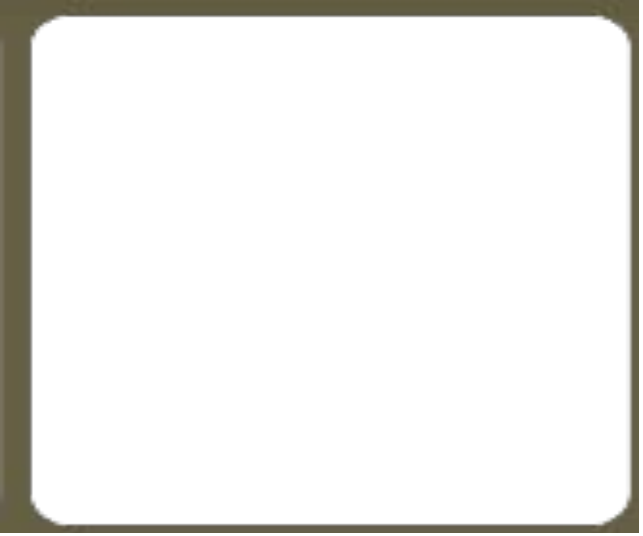

CE
$T_{j,in-set}$ [K]
350
340
330
320
310
300
290
280
0
200
400
600
800
1000
1200

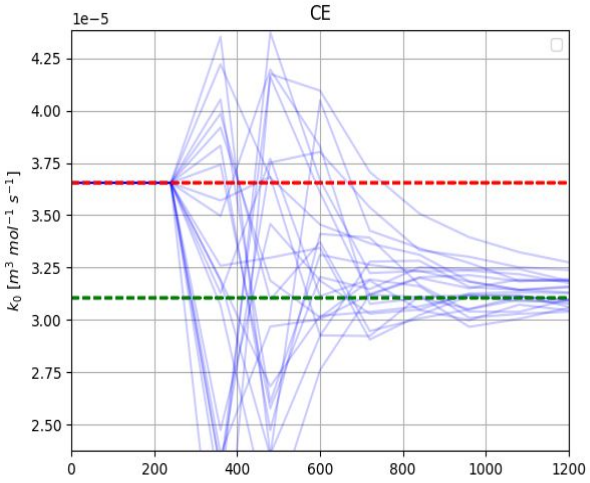

Dual
$T_{j,in-set}$ [K]
350
340
330
320
310
300
290
280
0
200
400
600
800
1000
1200

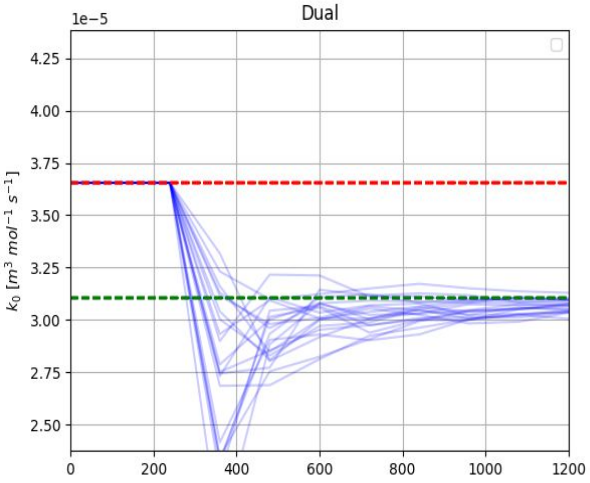

Soft constraint Dual
$T_{j,in-set}$ [K]
350
340
330
320
310
300
290
280
0
200
400
600
800
1000
1200

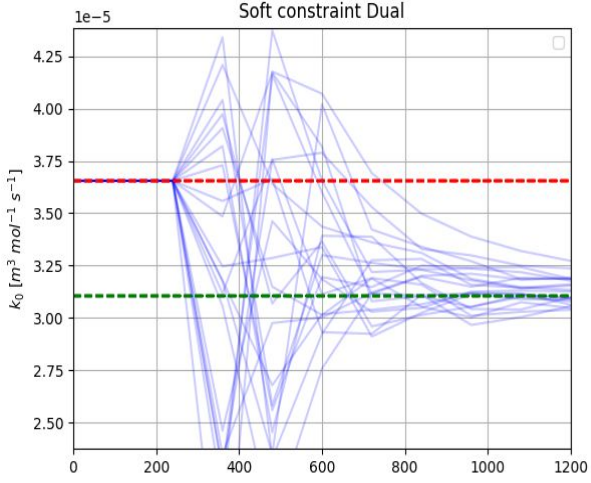

Tube
$T_{j,in-set}$ [K]
350
340
330
320
310
300
290
280
0
200
400
600
800
1000
1200

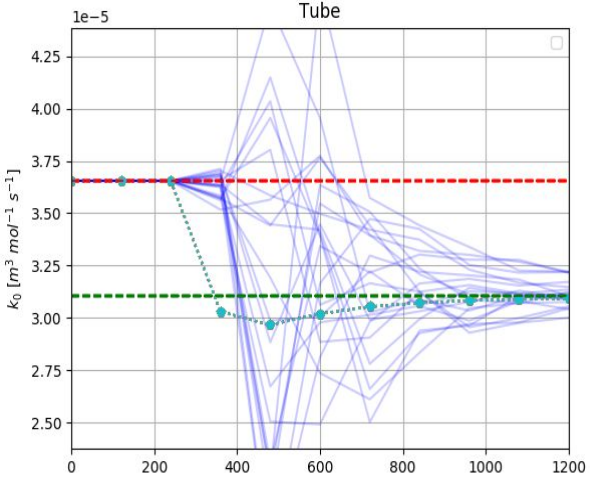

Tube+Dual
$T_{j,in-set}$ [K]
350
340
330
320
310
300
290
280
0
200
400
600
800
1000
1200

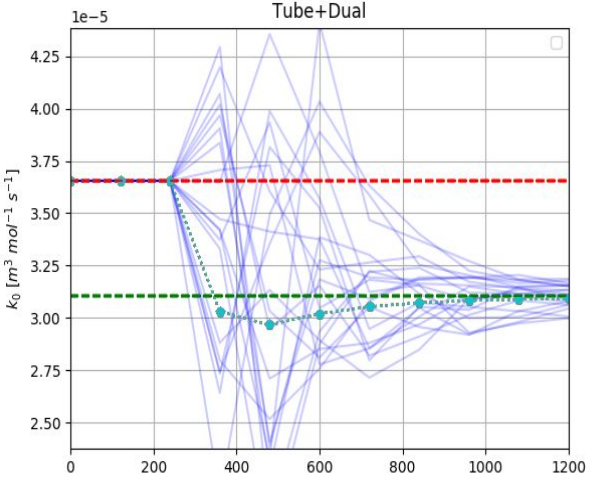



CE
1e−5
k_0 [m^3 mol^{-1} s^{-1}]
4.25
4.00
3.75
3.50
3.25
3.00
2.75
2.50
0
200
400
600
800
1000
1200


Dual
1e−5
k_0 [m^3 mol^{-1} s^{-1}]
4.25
4.00
3.75
3.50
3.25
3.00
2.75
2.50
0
200
400
600
800
1000
1200


Soft constraint Dual
1e−5
k_0 [m^3 mol^{-1} s^{-1}]
4.25
4.00
3.75
3.50
3.25
3.00
2.75
2.50
0
200
400
600
800
1000
1200


Tube
1e−5
k_0 [m^3 mol^{-1} s^{-1}]
4.25
4.00
3.75
3.50
3.25
3.00
2.75
2.50
0
200
400
600
800
1000
1200


Tube+Dual
1e−5
k_0 [m^3 mol^{-1} s^{-1}]
4.25
4.00
3.75
3.50
3.25
3.00
2.75
2.50
0
200
400
600
800
1000
1200