

```

1 "E:\1 \0000\3 \0000\1 \0000\1 \0000\1 \0000\1_LW_\0000\4 \0000\3 python_code\1 exzample\2 \0000\9 Code for
  this paper\Scripts\python.exe" "D:\Python\Pycharm\setroute\PyCharm Community Edition 2021.2.3\plugins\python-ce\helpers\pydev\pydevconsole.py" --mode=
  client --port=7745
2
3 import sys; print('Python %s on %s' % (sys.version, sys.platform))
4 sys.path.extend(['E:\1 \0000\3 \0000\1 \0000\1 \0000\1 \0000\1_LW_\0000\4 \0000\3 python_code\9 Code for this
  paper', 'E:/1 \0000/3 \0000/1 \0000/1 \0000\1_LW_\0000/4 \0000/3 python_code/9 Code for this paper'])
5
6 PyDev console: starting.
7
8 Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
9 >>> runfile('E:/1 \0000/3 \0000/1 \0000\1 \0000\1 \0000\1_LW_\0000/4 \0000/3 python_code/9 Code for this paper/
  main_RO_CCG_ExtendedByMe.py', wdir='E:/1 \0000/3 \0000/1 \0000\1 \0000\1_LW_\0000/4 \0000/3
  python_code/9 Code for this paper')
10 Backend TkAgg is interactive backend. Turning interactive mode on.
11 Waiting 5s.....
12
13 Optimize the ./R_8_1.xlsx instance by ECCG
14
15 Set parameter MIPGap to value 0.01
16 Master problem status = 2 , is Optimal and MP obj = 287.0
17 Set parameter Threads to value 1
18 The initial lb = -inf ub = inf
19
20 The current iteration cnt = 0
21 The SP model was solved Optimal 2 and SPObj = 287.0
22 Deterministic Sub problem Status= 2 , is Optimal
23 Master problem status = 2 , is Optimal
24 lb = 507.0 ub = 507.0
25 MPObj = 507.0 MP_delete_Hua_Obj = 301.0 Hua = 206.0 SPObj = 287.0 Deter_SP_Obj = 206.0
26
27 ub - lb = 0.0
28
29 Iteration cycle stopped by termination criterion 1: Because ub - lb <= eps, the iteration stop, and cnt = 0
30 i: 0.0 l_i: 6.0 p_i: 28.0 al_i: 1.0 sol_a_i: 1.0 sol_g_i: 0.0 d_i: 12.0 sol_taoi: 1.0 sol_deltai: 12.0 sol_deltai - sol_taoi: 11.0 sol_taoP: 1
  .0 sol_deltaP: 5.0 sol_deltaP - sol_taoP: 4.0 cl_i: 2838079.0 sol_c_i: 2838079.0 sol_gp_i: 0.0 total work: 3163728.0 wasted work: 1.
  2351845670677126
31 i: 1.0 l_i: 7.0 p_i: -0.0 al_i: 3.0 sol_a_i: 3.0 sol_g_i: 0.0 d_i: 24.0 sol_taoi: 3.0 sol_deltai: 23.0 sol_deltai - sol_taoi: 20.0 sol_taoP: 3
  .0 sol_deltaP: 10.0 sol_deltaP - sol_taoP: 7.0 cl_i: 5225121.0 sol_c_i: 5225121.0 sol_gp_i: 0.0 total work: 5272880.0 wasted work: 0.
  1811495804949098
32 i: 2.0 l_i: 6.0 p_i: 8.0 al_i: 13.0 sol_a_i: 13.0 sol_g_i: 0.0 d_i: 40.0 sol_taoi: 13.0 sol_deltai: 37.0 sol_deltai - sol_taoi: 24.0 sol_taoP:
  13.0 sol_deltaP: 18.0 sol_deltaP - sol_taoP: 5.0 cl_i: 6204790.0 sol_c_i: 6204790.0 sol_gp_i: 0.0 total work: 6327456.0 wasted work: 0.
  4652713507608745
33 i: 3.0 l_i: 5.0 p_i: 14.0 al_i: 14.0 sol_a_i: 14.0 sol_g_i: 0.0 d_i: 24.0 sol_taoi: 14.0 sol_deltai: 26.0 sol_deltai - sol_taoi: 12.0 sol_taoP
  : 14.0 sol_deltaP: 17.0 sol_deltaP - sol_taoP: 3.0 cl_i: 2990355.0 sol_c_i: 2990355.0 sol_gp_i: 0.0 total work: 3163728.0 wasted work: 0.
  6576026763362717
34 i: 4.0 l_i: 6.0 p_i: 21.0 al_i: 18.0 sol_a_i: 18.0 sol_g_i: 0.0 d_i: 34.0 sol_taoi: 18.0 sol_deltai: 37.0 sol_deltai - sol_taoi: 19.0 sol_taoP
  : 18.0 sol_deltaP: 25.0 sol_deltaP - sol_taoP: 7.0 cl_i: 4876117.0 sol_c_i: 4876117.0 sol_gp_i: 0.0 total work: 5009236.0 wasted work: 0.
  5049195126761845
35 i: 5.0 l_i: 7.0 p_i: 14.0 al_i: 24.0 sol_a_i: 28.0 sol_g_i: 0.8 d_i: 50.0 sol_taoi: 28.0 sol_deltai: 55.0 sol_deltai - sol_taoi: 27.0 sol_taoP
  : 28.0 sol_deltaP: 37.0 sol_deltaP - sol_taoP: 9.0 cl_i: 6856681.0 sol_c_i: 7118388.0 sol_gp_i: 0.16544216190519545 total work: 7118388.0
  wasted work: 0.0
36 i: 6.0 l_i: 5.0 p_i: 27.0 al_i: 25.0 sol_a_i: 27.4 sol_g_i: 0.3 d_i: 43.0 sol_taoi: 28.0 sol_deltai: 42.0 sol_deltai - sol_taoi: 14.0 sol_taoP
  : 28.0 sol_deltaP: 33.0 sol_deltaP - sol_taoP: 5.0 cl_i: 3585255.0 sol_c_i: 4605485.466666667 sol_gp_i: 0.9674319031218866 total work:
  4613770.0 wasted work: 0.03142318176530932
37 i: 7.0 l_i: 6.0 p_i: 21.0 al_i: 48.0 sol_a_i: 55.0 sol_g_i: 0.7 d_i: 62.0 sol_taoi: 55.0 sol_deltai: 69.0 sol_deltai - sol_taoi: 14.0 sol_taoP
  : 55.0 sol_deltaP: 61.0 sol_deltaP - sol_taoP: 6.0 cl_i: 3514769.0 sol_c_i: 4218304.0 sol_gp_i: 0.667125934972918 total work: 4350126.0
  wasted work: 0.5
38 Time: 41.000000
39
40
41
42

```