```
>> demo_Polynomial_Dictionary_Learning
Starting to train the dictionary
solving the quadratic problem with YALMIP...

 num. of constraints = 13
 dim. of socp   var  = 14,   num. of socp blk  =  1
 dim. of linear var  = 800
 12 linear variables from unrestricted variable.

 *** convert ublk to linear blk
********************************************************************************* ↙
******
   SDPT3: homogeneous self-dual path-following algorithms
********************************************************************************* ↙
******
 version  predcorr  gam  expon
   HKM      1      0.000   1
it pstep dstep pinfeas dinfeas  gap     mean(obj)    cputime    kap   tau    theta
------------------------------------------------------------------------------- ↙
------
 0|0.000|0.000|1.5e+00|1.5e+01|1.3e+06| 1.121432e+04| 0:0:00|1.3e+06|1.0e+00|1.0e+00| ↙
chol 1  1
 1|0.952|0.952|7.1e-02|7.0e-01|7.5e+04| 1.015938e+04| 0:0:00|2.0e+04|1.0e+00|4.9e-02| ↙
chol 1  1
 2|0.328|0.328|6.6e-02|6.5e-01|8.4e+04| 1.103021e+04| 0:0:00|1.5e+04|9.4e-01|4.2e-02| ↙
chol 1  1
 3|0.931|0.931|2.8e-02|2.8e-01|4.1e+04| 7.453718e+03| 0:0:00|8.5e+02|9.6e-01|1.8e-02| ↙
chol 1  1
 4|0.840|0.840|9.4e-03|9.3e-02|1.3e+04| 3.183802e+03| 0:0:00|3.8e+01|1.1e+00|7.0e-03| ↙
chol 1  1
 5|0.862|0.862|1.4e-03|1.4e-02|1.6e+03| 4.115661e+02| 0:0:00|1.4e+01|1.3e+00|1.2e-03| ↙
chol 1  1
 6|1.000|1.000|1.0e-03|1.0e-02|1.4e+03| 3.563629e+02| 0:0:00|3.4e+00|1.2e+00|8.3e-04| ↙
chol 1  1
 7|0.916|0.916|3.2e-04|3.2e-03|4.3e+02| 8.035590e+01| 0:0:00|2.1e+00|1.2e+00|2.7e-04| ↙
chol 1  1
 8|1.000|1.000|1.6e-04|1.6e-03|2.1e+02| 1.278381e+01| 0:0:00|6.4e-01|1.3e+00|1.3e-04| ↙
chol 1  1
 9|1.000|1.000|4.6e-05|5.1e-04|6.1e+01|-3.089839e+01| 0:0:00|3.1e-01|1.3e+00|4.0e-05| ↙
chol 1  1
10|1.000|1.000|2.0e-05|2.4e-04|2.5e+01|-4.126758e+01| 0:0:00|8.7e-02|1.3e+00|1.8e-05| ↙
chol 1  1
11|1.000|1.000|1.0e-05|1.4e-04|1.2e+01|-4.506448e+01| 0:0:00|3.8e-02|1.4e+00|9.5e-06| ↙
chol 1  1
12|1.000|1.000|2.9e-06|8.5e-05|3.4e+00|-4.790029e+01| 0:0:00|1.8e-02|1.5e+00|3.0e-06| ↙
chol 1  1
13|1.000|1.000|1.2e-06|7.1e-05|1.2e+00|-4.854807e+01| 0:0:00|4.1e-03|1.7e+00|1.3e-06| ↙
chol 1  1
14|1.000|1.000|1.5e-07|6.1e-05|1.3e-01|-4.891809e+01| 0:0:00|2.0e-03|1.9e+00|1.8e-07| ↙
chol 1  1
15|0.965|0.965|1.6e-08|2.6e-05|1.3e-02|-4.895489e+01| 0:0:00|2.9e-04|1.9e+00|2.0e-08| ↙
chol 1  1
16|0.983|0.983|1.7e-09|1.0e-05|1.2e-03|-4.895755e+01| 0:0:00|3.2e-05|2.0e+00|1.9e-09| ↙
chol 1  1
17|1.000|1.000|4.2e-09|4.0e-06|1.5e-04|-4.895765e+01| 0:0:00|2.8e-06|2.0e+00|2.3e-10| ↙
```

```
chol 1  1
18|1.000|1.000|3.0e-08|1.6e-06|4.8e-05|-4.895765e+01| 0:0:00|3.7e-07|2.0e+00|6.5e-11| ↙
chol 1  1
19|0.998|0.998|8.2e-09|1.6e-06|9.6e-07|-4.895767e+01| 0:0:00|1.2e-07|2.0e+00|0.0e+00| ↙
chol 1  1
20|1.000|1.000|3.3e-09|1.6e-06|1.7e-08|-4.895767e+01| 0:0:00|2.5e-09|2.0e+00|0.0e+00| ↙
chol 1  1
21|1.000|1.000|2.5e-09|1.6e-06|4.2e-10|-4.895767e+01| 0:0:00|4.4e-11|2.0e+00|0.0e+00|
  lack of progess in infeas
-----------------------------------------------------------------
 number of iterations   = 21
 primal objective value = -4.89576409e+01
 dual   objective value = -4.89576661e+01
 gap := trace(XZ)       = 4.82e-05
 relative gap           = 9.65e-07
 actual relative gap    = 2.55e-07
 rel. primal infeas     = 2.97e-08
 rel. dual   infeas     = 1.58e-06
 norm(X), norm(y), norm(Z) = 3.3e+00, 5.6e+01, 2.0e+01
 norm(A), norm(b), norm(C) = 8.0e+02, 1.1e+00, 7.6e+01
 Total CPU time (secs)  = 0.19
 CPU time per iteration = 0.01
 termination code       = -9
 DIMACS errors: 3.0e-08  0.0e+00  1.6e-06  0.0e+00  2.6e-07  4.9e-07
-----------------------------------------------------------------

ans =

   48.9577


 num. of constraints = 13
 dim. of socp   var  = 14,   num. of socp blk  =  1
 dim. of linear var  = 800
 12 linear variables from unrestricted variable.

 *** convert ublk to linear blk
********************************************************************************* ↙
******
   SDPT3: homogeneous self-dual path-following algorithms
********************************************************************************* ↙
******
 version  predcorr  gam  expon
   HKM      1      0.000   1
it pstep dstep pinfeas dinfeas  gap     mean(obj)    cputime    kap   tau    theta
------------------------------------------------------------------------------------ ↙
------
 0|0.000|0.000|1.3e+00|1.5e+01|3.0e+06| 2.633055e+04| 0:0:00|3.0e+06|1.0e+00|1.0e+00| ↙
chol 1  1
 1|0.892|0.892|1.5e-01|1.6e+00|3.5e+05| 2.423986e+04| 0:0:00|2.4e+05|1.0e+00|1.1e-01| ↙
chol 1  1
 2|0.369|0.369|1.5e-01|1.7e+00|5.1e+05| 3.228326e+04| 0:0:00|1.9e+05|8.6e-01|9.8e-02| ↙
chol 1  1
 3|1.000|1.000|1.2e-01|1.3e+00|6.9e+05| 4.960293e+04| 0:0:00|5.7e+04|6.1e-01|5.4e-02| ↙
chol 1  1
```

```
 4|0.711|0.711|5.3e-02|5.8e-01|2.4e+05| 2.878982e+04| 0:0:00|2.7e+03|7.6e-01|3.0e-02| ↙
chol 1  1
 5|0.769|0.769|1.8e-02|2.0e-01|7.2e+04| 1.392239e+04| 0:0:00|1.2e+02|9.5e-01|1.3e-02| ↙
chol 1  1
 6|1.000|1.000|1.3e-03|1.5e-02|4.6e+03| 1.265610e+03| 0:0:00|4.7e+01|1.2e+00|1.2e-03| ↙
chol 1  1
 7|0.729|0.729|9.4e-04|1.0e-02|3.3e+03| 9.318742e+02| 0:0:00|1.8e+01|1.2e+00|8.6e-04| ↙
chol 1  1
 8|0.980|0.980|5.6e-04|6.2e-03|2.0e+03| 5.365361e+02| 0:0:00|5.3e+00|1.2e+00|5.2e-04| ↙
chol 1  1
 9|1.000|1.000|3.2e-04|3.7e-03|1.2e+03| 2.950047e+02| 0:0:00|3.0e+00|1.2e+00|3.0e-04| ↙
chol 1  1
10|1.000|1.000|1.2e-04|1.4e-03|4.1e+02| 7.604957e+01| 0:0:00|1.7e+00|1.3e+00|1.1e-04| ↙
chol 1  1
11|1.000|1.000|5.1e-05|6.0e-04|1.8e+02| 7.574861e+00| 0:0:00|6.1e-01|1.3e+00|4.9e-05| ↙
chol 1  1
12|1.000|1.000|1.2e-05|1.7e-04|4.1e+01|-3.245902e+01| 0:0:00|2.6e-01|1.3e+00|1.2e-05| ↙
chol 1  1
13|0.972|0.972|5.9e-06|1.0e-04|1.9e+01|-3.841087e+01| 0:0:00|5.8e-02|1.4e+00|6.2e-06| ↙
chol 1  1
14|1.000|1.000|3.2e-06|7.5e-05|9.3e+00|-4.126223e+01| 0:0:00|2.9e-02|1.5e+00|3.5e-06| ↙
chol 1  1
15|1.000|1.000|1.5e-06|6.0e-05|4.0e+00|-4.282586e+01| 0:0:00|1.5e-02|1.6e+00|1.7e-06| ↙
chol 1  1
16|1.000|1.000|5.3e-07|5.1e-05|1.3e+00|-4.371275e+01| 0:0:00|6.6e-03|1.7e+00|6.8e-07| ↙
chol 1  1
17|1.000|1.000|1.9e-07|4.5e-05|4.5e-01|-4.400006e+01| 0:0:00|2.4e-03|1.8e+00|2.6e-07| ↙
chol 1  1
18|0.957|0.957|3.8e-08|1.9e-05|8.5e-02|-4.412737e+01| 0:0:00|1.0e-03|1.9e+00|5.3e-08| ↙
chol 1  1
19|1.000|1.000|1.7e-08|7.3e-06|3.8e-02|-4.414155e+01| 0:0:00|1.9e-04|1.9e+00|2.4e-08| ↙
chol 1  1
20|1.000|1.000|3.6e-09|2.9e-06|8.1e-03|-4.415244e+01| 0:0:00|8.7e-05|1.9e+00|5.2e-09| ↙
chol 1  1
21|1.000|1.000|1.6e-09|1.2e-06|3.5e-03|-4.415399e+01| 0:0:00|1.9e-05|1.9e+00|2.2e-09| ↙
chol 1  1
22|0.976|0.976|2.6e-10|5.1e-07|4.9e-04|-4.415515e+01| 0:0:00|8.5e-06|2.0e+00|3.2e-10| ↙
chol 1  1
23|1.000|1.000|2.4e-10|2.0e-07|6.1e-05|-4.415530e+01| 0:0:00|1.2e-06|2.0e+00|4.0e-11| ↙
chol 1  1
24|1.000|1.000|3.7e-09|2.0e-07|6.3e-06|-4.415532e+01| 0:0:00|1.5e-07|2.0e+00|3.2e-12| ↙
chol 1  1
25|1.000|1.000|1.8e-09|2.0e-07|2.3e-07|-4.415532e+01| 0:0:00|1.5e-08|2.0e+00|0.0e+00| ↙
chol 1  1
26|1.000|1.000|2.2e-09|2.0e-07|3.4e-09|-4.415532e+01| 0:0:00|5.8e-10|2.0e+00|0.0e+00| ↙
chol 1  1
27|1.000|1.000|2.7e-09|2.0e-07|5.5e-11|-4.415532e+01| 0:0:00|8.8e-12|2.0e+00|0.0e+00|
  Stop: relative gap < infeasibility
  lack of progess in infeas
------------------------------------------------------------------
 number of iterations   = 27
 primal objective value = -4.41553191e+01
 dual   objective value = -4.41553231e+01
 gap := trace(XZ)       = 6.25e-06
 relative gap           = 1.39e-07
```

```
 actual relative gap    = 4.46e-08
 rel. primal infeas     = 3.66e-09
 rel. dual   infeas     = 1.96e-07
 norm(X), norm(y), norm(Z) = 6.0e+00, 5.9e+01, 2.3e+01
 norm(A), norm(b), norm(C) = 8.0e+02, 5.4e+00, 7.6e+01
 Total CPU time (secs)  = 0.20
 CPU time per iteration = 0.01
 termination code       = -9
 DIMACS errors: 3.7e-09  0.0e+00  2.0e-07  0.0e+00  4.5e-08  7.0e-08
------------------------------------------------------------------

ans =

   44.1553

Iteration   2   Total error is: 0.027029

 num. of constraints = 13
 dim. of socp   var  = 14,   num. of socp blk  =  1
 dim. of linear var  = 800
 12 linear variables from unrestricted variable.

 *** convert ublk to linear blk
********************************************************************************* ↙
******
   SDPT3: homogeneous self-dual path-following algorithms
********************************************************************************* ↙
******
 version  predcorr  gam  expon
   HKM      1      0.000   1
it pstep dstep pinfeas dinfeas  gap     mean(obj)    cputime    kap   tau    theta
------------------------------------------------------------------------------------ ↙
------
 0|0.000|0.000|1.3e+00|1.5e+01|3.2e+06| 2.873392e+04| 0:0:00|3.2e+06|1.0e+00|1.0e+00| ↙
chol 1  1
 1|0.887|0.887|1.5e-01|1.7e+00|4.0e+05| 2.652093e+04| 0:0:00|2.8e+05|1.0e+00|1.2e-01| ↙
chol 1  1
 2|0.365|0.365|1.6e-01|1.8e+00|5.9e+05| 3.560342e+04| 0:0:00|2.3e+05|8.5e-01|1.0e-01| ↙
chol 1  1
 3|1.000|1.000|1.3e-01|1.4e+00|8.4e+05| 5.663807e+04| 0:0:00|7.0e+04|5.9e-01|5.7e-02| ↙
chol 1  1
 4|0.680|0.680|5.3e-02|6.0e-01|2.7e+05| 3.166682e+04| 0:0:00|3.2e+03|7.6e-01|3.1e-02| ↙
chol 1  1
 5|0.815|0.815|1.9e-02|2.1e-01|9.0e+04| 1.727087e+04| 0:0:00|1.5e+02|9.2e-01|1.3e-02| ↙
chol 1  1
 6|1.000|1.000|1.5e-03|1.7e-02|5.9e+03| 1.634699e+03| 0:0:00|5.0e+01|1.2e+00|1.4e-03| ↙
chol 1  1
 7|0.740|0.740|1.0e-03|1.1e-02|4.0e+03| 1.125622e+03| 0:0:00|2.0e+01|1.2e+00|9.4e-04| ↙
chol 1  1
 8|1.000|1.000|6.1e-04|6.9e-03|2.5e+03| 6.624884e+02| 0:0:00|6.1e+00|1.2e+00|5.7e-04| ↙
chol 1  1
 9|1.000|1.000|3.3e-04|3.9e-03|1.3e+03| 3.480934e+02| 0:0:00|3.7e+00|1.2e+00|3.2e-04| ↙
chol 1  1
10|1.000|1.000|1.4e-04|1.6e-03|5.4e+02| 1.097797e+02| 0:0:00|2.0e+00|1.3e+00|1.3e-04| ↙
chol 1  1
```

```
11|1.000|1.000|5.7e-05|6.8e-04|2.2e+02| 2.035146e+01| 0:0:00|7.9e-01|1.3e+00|5.6e-05| ↙
chol 1  1
12|1.000|1.000|1.8e-05|2.4e-04|6.9e+01|-2.405923e+01| 0:0:00|3.2e-01|1.3e+00|1.8e-05| ↙
chol 1  1
13|1.000|1.000|8.4e-06|1.3e-04|3.0e+01|-3.466951e+01| 0:0:00|9.7e-02|1.4e+00|8.9e-06| ↙
chol 1  1
14|1.000|1.000|3.3e-06|7.7e-05|1.1e+01|-4.035191e+01| 0:0:00|4.5e-02|1.5e+00|3.7e-06| ↙
chol 1  1
15|1.000|1.000|1.4e-06|6.0e-05|4.4e+00|-4.225877e+01| 0:0:00|1.6e-02|1.6e+00|1.7e-06| ↙
chol 1  1
16|1.000|1.000|5.0e-07|5.1e-05|1.4e+00|-4.318617e+01| 0:0:00|7.1e-03|1.7e+00|6.6e-07| ↙
chol 1  1
17|1.000|1.000|1.7e-07|4.5e-05|4.6e-01|-4.348297e+01| 0:0:00|2.5e-03|1.8e+00|2.4e-07| ↙
chol 1  1
18|1.000|1.000|4.3e-08|4.0e-05|1.1e-01|-4.360025e+01| 0:0:00|9.4e-04|1.9e+00|6.2e-08| ↙
chol 1  1
19|1.000|1.000|1.4e-08|1.6e-05|3.5e-02|-4.362407e+01| 0:0:00|2.5e-04|1.9e+00|2.1e-08| ↙
chol 1  1
20|1.000|1.000|3.8e-09|6.5e-06|9.6e-03|-4.363284e+01| 0:0:00|8.2e-05|1.9e+00|5.7e-09| ↙
chol 1  1
21|1.000|1.000|1.2e-09|2.6e-06|3.1e-03|-4.363505e+01| 0:0:00|2.3e-05|2.0e+00|1.8e-09| ↙
chol 1  1
22|0.975|0.975|2.2e-10|1.1e-06|4.9e-04|-4.363599e+01| 0:0:00|7.7e-06|2.0e+00|3.0e-10| ↙
chol 1  1
23|1.000|1.000|1.5e-10|4.2e-07|9.5e-05|-4.363612e+01| 0:0:00|1.2e-06|2.0e+00|5.7e-11| ↙
chol 1  1
24|1.000|1.000|7.4e-10|4.2e-07|1.1e-05|-4.363615e+01| 0:0:00|2.3e-07|2.0e+00|6.7e-12| ↙
chol 1  1
25|1.000|1.000|9.8e-10|4.2e-07|5.8e-07|-4.363616e+01| 0:0:00|2.8e-08|2.0e+00|9.9e-14| ↙
chol 1  1
26|1.000|1.000|1.6e-09|4.2e-07|8.9e-09|-4.363616e+01| 0:0:00|1.4e-09|2.0e+00|0.0e+00|
  Stop: relative gap < infeasibility
-----------------------------------------------------------------
 number of iterations   = 26
 primal objective value = -4.36361467e+01
 dual   objective value = -4.36361551e+01
 gap := trace(XZ)       = 1.15e-05
 relative gap           = 2.57e-07
 actual relative gap    = 9.56e-08
 rel. primal infeas     = 7.37e-10
 rel. dual   infeas     = 4.21e-07
 norm(X), norm(y), norm(Z) = 6.4e+00, 6.0e+01, 2.3e+01
 norm(A), norm(b), norm(C) = 8.0e+02, 6.0e+00, 7.6e+01
 Total CPU time (secs)  = 0.20
 CPU time per iteration = 0.01
 termination code       = -1
 DIMACS errors: 7.4e-10  0.0e+00  4.2e-07  0.0e+00  9.6e-08  1.3e-07
-----------------------------------------------------------------

ans =

   43.6362

Iteration   3   Total error is: 0.026879
```

```
 num. of constraints = 13
 dim. of socp   var  = 14,   num. of socp blk  =  1
 dim. of linear var  = 800
 12 linear variables from unrestricted variable.

 *** convert ublk to linear blk
********************************************************************************* ↙
******
   SDPT3: homogeneous self-dual path-following algorithms
********************************************************************************* ↙
******
 version  predcorr  gam  expon
   HKM      1      0.000   1
it pstep dstep pinfeas dinfeas  gap     mean(obj)    cputime    kap    tau    theta
------------------------------------------------------------------------------------ ↙
------
 0|0.000|0.000|1.3e+00|1.5e+01|3.4e+06| 3.027367e+04| 0:0:00|3.4e+06|1.0e+00|1.0e+00| ↙
chol 1  1
 1|0.864|0.864|1.8e-01|2.1e+00|5.1e+05| 2.826176e+04| 0:0:00|3.9e+05|1.0e+00|1.5e-01| ↙
chol 1  1
 2|0.352|0.352|2.0e-01|2.3e+00|8.1e+05| 3.965541e+04| 0:0:00|3.3e+05|8.3e-01|1.3e-01| ↙
chol 1  1
 3|1.000|1.000|2.0e-01|2.2e+00|1.7e+06| 7.793046e+04| 0:0:00|1.3e+05|5.1e-01|7.7e-02| ↙
chol 1  1
 4|0.610|0.610|7.1e-02|8.2e-01|4.4e+05| 4.271342e+04| 0:0:00|4.7e+03|6.9e-01|3.8e-02| ↙
chol 1  1
 5|0.854|0.854|3.2e-02|3.7e-01|2.1e+05| 3.253442e+04| 0:0:00|6.6e+02|7.4e-01|1.8e-02| ↙
chol 1  1
 6|0.797|0.797|8.6e-03|9.8e-02|4.1e+04| 9.459933e+03| 0:0:00|2.6e+01|1.0e+00|6.8e-03| ↙
chol 1  1
 7|0.851|0.851|1.2e-03|1.4e-02|4.9e+03| 1.230325e+03| 0:0:00|4.3e+01|1.2e+00|1.2e-03| ↙
chol 1  1
 8|1.000|1.000|9.2e-04|1.1e-02|4.0e+03| 1.102220e+03| 0:0:00|8.4e+00|1.2e+00|8.5e-04| ↙
chol 1  1
 9|1.000|1.000|3.8e-04|4.4e-03|1.6e+03| 4.185958e+02| 0:0:00|5.8e+00|1.2e+00|3.6e-04| ↙
chol 1  1
10|1.000|1.000|1.8e-04|2.2e-03|7.9e+02| 1.758892e+02| 0:0:00|2.4e+00|1.2e+00|1.8e-04| ↙
chol 1  1
11|1.000|1.000|6.9e-05|8.4e-04|2.9e+02| 3.681004e+01| 0:0:00|1.2e+00|1.3e+00|6.8e-05| ↙
chol 1  1
12|1.000|1.000|2.9e-05|3.6e-04|1.2e+02|-1.050698e+01| 0:0:00|4.3e-01|1.3e+00|2.9e-05| ↙
chol 1  1
13|1.000|1.000|1.0e-05|1.5e-04|4.0e+01|-3.227703e+01| 0:0:00|1.7e-01|1.3e+00|1.0e-05| ↙
chol 1  1
14|1.000|1.000|4.2e-06|8.4e-05|1.6e+01|-3.882914e+01| 0:0:00|5.5e-02|1.4e+00|4.6e-06| ↙
chol 1  1
15|1.000|1.000|1.4e-06|6.0e-05|4.7e+00|-4.198264e+01| 0:0:00|2.2e-02|1.5e+00|1.7e-06| ↙
chol 1  1
16|1.000|1.000|5.3e-07|5.1e-05|1.6e+00|-4.286789e+01| 0:0:00|6.6e-03|1.7e+00|7.1e-07| ↙
chol 1  1
17|1.000|1.000|1.2e-07|4.5e-05|3.4e-01|-4.328847e+01| 0:0:00|2.9e-03|1.9e+00|1.7e-07| ↙
chol 1  1
18|1.000|1.000|2.8e-08|1.8e-05|7.7e-02|-4.337468e+01| 0:0:00|7.1e-04|1.9e+00|4.1e-08| ↙
chol 1  1
19|1.000|1.000|7.5e-09|7.2e-06|2.0e-02|-4.339339e+01| 0:0:00|1.7e-04|1.9e+00|1.1e-08| ↙
```

```
chol 1  1
20|1.000|1.000|1.7e-09|2.9e-06|4.5e-03|-4.339877e+01| 0:0:00|4.7e-05|2.0e+00|2.5e-09| ↙
chol 1  1
21|0.957|0.957|2.6e-10|1.3e-06|5.0e-04|-4.340018e+01| 0:0:00|1.2e-05|2.0e+00|3.0e-10| ↙
chol 1  1
22|0.968|0.968|2.6e-10|5.0e-07|5.6e-05|-4.340031e+01| 0:0:00|1.6e-06|2.0e+00|3.4e-11| ↙
chol 1  1
23|1.000|1.000|5.1e-09|4.8e-07|7.0e-06|-4.340032e+01| 0:0:00|1.4e-07|2.0e+00|2.7e-12| ↙
chol 1  1
24|1.000|1.000|1.2e-09|4.8e-07|1.1e-07|-4.340033e+01| 0:0:00|1.7e-08|2.0e+00|0.0e+00| ↙
chol 1  1
25|1.000|1.000|1.2e-09|4.8e-07|1.5e-09|-4.340033e+01| 0:0:00|2.9e-10|2.0e+00|0.0e+00| ↙
chol 1  1
26|0.996|0.996|1.3e-09|4.8e-07|2.3e-11|-4.340033e+01| 0:0:00|5.0e-12|2.0e+00|0.0e+00|
  lack of progess in infeas
------------------------------------------------------------------
 number of iterations   = 26
 primal objective value = -4.34003216e+01
 dual   objective value = -4.34003254e+01
 gap := trace(XZ)       = 7.04e-06
 relative gap           = 1.59e-07
 actual relative gap    = 4.23e-08
 rel. primal infeas     = 5.05e-09
 rel. dual   infeas     = 4.77e-07
 norm(X), norm(y), norm(Z) = 6.5e+00, 6.0e+01, 2.4e+01
 norm(A), norm(b), norm(C) = 8.0e+02, 6.4e+00, 7.6e+01
 Total CPU time (secs)  = 0.22
 CPU time per iteration = 0.01
 termination code       = -9
 DIMACS errors: 5.1e-09  0.0e+00  4.8e-07  0.0e+00  4.2e-08  8.0e-08
------------------------------------------------------------------

ans =

   43.4003

Iteration   4   Total error is: 0.026803

 num. of constraints = 13
 dim. of socp   var  = 14,   num. of socp blk  =  1
 dim. of linear var  = 800
 12 linear variables from unrestricted variable.

 *** convert ublk to linear blk
********************************************************************************* ↙
******
   SDPT3: homogeneous self-dual path-following algorithms
********************************************************************************* ↙
******
 version  predcorr  gam  expon
   HKM      1      0.000   1
it pstep dstep pinfeas dinfeas  gap     mean(obj)    cputime    kap   tau    theta
------------------------------------------------------------------------------------ ↙
------
 0|0.000|0.000|1.3e+00|1.5e+01|3.5e+06| 3.138671e+04| 0:0:00|3.5e+06|1.0e+00|1.0e+00| ↙
```

```
chol 1  1
 1|0.870|0.870|1.8e-01|2.0e+00|5.1e+05| 2.923866e+04| 0:0:00|3.9e+05|1.0e+00|1.4e-01| ↙
chol 1  1
 2|0.372|0.372|1.9e-01|2.2e+00|8.2e+05| 4.149949e+04| 0:0:00|3.2e+05|8.2e-01|1.2e-01| ↙
chol 1  1
 3|1.000|1.000|2.0e-01|2.3e+00|1.9e+06| 8.496234e+04| 0:0:00|1.3e+05|4.9e-01|7.6e-02| ↙
chol 1  1
 4|0.664|0.664|8.1e-02|9.3e-01|5.8e+05| 5.103959e+04| 0:0:00|5.6e+03|6.3e-01|4.0e-02| ↙
chol 1  1
 5|0.812|0.812|3.2e-02|3.7e-01|2.1e+05| 3.177166e+04| 0:0:00|3.1e+02|7.6e-01|1.9e-02| ↙
chol 1  1
 6|1.000|1.000|3.7e-03|4.2e-02|1.8e+04| 4.610079e+03| 0:0:00|4.4e+01|1.1e+00|3.2e-03| ↙
chol 1  1
 7|0.800|0.800|1.4e-03|1.6e-02|6.3e+03| 1.743201e+03| 0:0:00|2.6e+01|1.2e+00|1.3e-03| ↙
chol 1  1
 8|1.000|1.000|1.0e-03|1.2e-02|4.6e+03| 1.228898e+03| 0:0:00|9.7e+00|1.2e+00|9.3e-04| ↙
chol 1  1
 9|1.000|1.000|4.9e-04|5.7e-03|2.2e+03| 5.879815e+02| 0:0:00|6.6e+00|1.2e+00|4.6e-04| ↙
chol 1  1
10|1.000|1.000|2.1e-04|2.5e-03|9.5e+02| 2.172415e+02| 0:0:00|3.2e+00|1.2e+00|2.0e-04| ↙
chol 1  1
11|1.000|1.000|9.3e-05|1.1e-03|4.1e+02| 7.093121e+01| 0:0:00|1.4e+00|1.3e+00|9.0e-05| ↙
chol 1  1
12|1.000|1.000|3.4e-05|4.2e-04|1.4e+02|-3.297605e+00| 0:0:00|6.0e-01|1.3e+00|3.4e-05| ↙
chol 1  1
13|1.000|1.000|1.3e-05|1.8e-04|5.4e+01|-2.805502e+01| 0:0:00|2.1e-01|1.3e+00|1.3e-05| ↙
chol 1  1
14|1.000|1.000|4.1e-06|8.4e-05|1.6e+01|-3.875461e+01| 0:0:00|7.7e-02|1.4e+00|4.5e-06| ↙
chol 1  1
15|1.000|1.000|1.9e-06|6.2e-05|6.7e+00|-4.122493e+01| 0:0:00|2.1e-02|1.5e+00|2.2e-06| ↙
chol 1  1
16|1.000|1.000|6.9e-07|5.1e-05|2.3e+00|-4.256642e+01| 0:0:00|1.1e-02|1.7e+00|8.9e-07| ↙
chol 1  1
17|1.000|1.000|2.6e-07|4.5e-05|7.9e-01|-4.300511e+01| 0:0:00|3.8e-03|1.8e+00|3.6e-07| ↙
chol 1  1
18|1.000|1.000|6.5e-08|4.0e-05|1.9e-01|-4.320153e+01| 0:0:00|1.5e-03|1.9e+00|9.7e-08| ↙
chol 1  1
19|1.000|1.000|1.8e-08|1.6e-05|5.0e-02|-4.324630e+01| 0:0:00|4.2e-04|1.9e+00|2.6e-08| ↙
chol 1  1
20|1.000|1.000|5.3e-09|6.5e-06|1.5e-02|-4.325770e+01| 0:0:00|1.1e-04|1.9e+00|8.0e-09| ↙
chol 1  1
21|1.000|1.000|1.4e-09|2.6e-06|4.0e-03|-4.326139e+01| 0:0:00|3.5e-05|2.0e+00|2.2e-09| ↙
chol 1  1
22|0.966|0.966|2.5e-10|1.1e-06|6.1e-04|-4.326259e+01| 0:0:00|1.0e-05|2.0e+00|3.4e-10| ↙
chol 1  1
23|0.999|0.999|1.3e-10|4.2e-07|9.3e-05|-4.326276e+01| 0:0:00|1.5e-06|2.0e+00|5.1e-11| ↙
chol 1  1
24|1.000|1.000|2.0e-09|4.2e-07|9.8e-06|-4.326278e+01| 0:0:00|2.3e-07|2.0e+00|4.9e-12| ↙
chol 1  1
25|1.000|1.000|1.5e-09|4.2e-07|4.2e-07|-4.326279e+01| 0:0:00|2.4e-08|2.0e+00|0.0e+00|
  Stop: relative gap < infeasibility
------------------------------------------------------------------
 number of iterations   = 25
 primal objective value = -4.32627799e+01
 dual   objective value = -4.32627864e+01
```

```
 gap := trace(XZ)       = 9.81e-06
 relative gap           = 2.22e-07
 actual relative gap    = 7.51e-08
 rel. primal infeas     = 1.98e-09
 rel. dual   infeas     = 4.21e-07
 norm(X), norm(y), norm(Z) = 6.6e+00, 6.0e+01, 2.4e+01
 norm(A), norm(b), norm(C) = 8.0e+02, 6.7e+00, 7.6e+01
 Total CPU time (secs)  = 0.23
 CPU time per iteration = 0.01
 termination code       = -1
 DIMACS errors: 2.0e-09  0.0e+00  4.2e-07  0.0e+00  7.5e-08  1.1e-07
------------------------------------------------------------------

ans =

   43.2628

Iteration   5   Total error is: 0.026777

 num. of constraints = 13
 dim. of socp   var  = 14,   num. of socp blk  =  1
 dim. of linear var  = 800
 12 linear variables from unrestricted variable.

 *** convert ublk to linear blk
********************************************************************************* ↙
******
   SDPT3: homogeneous self-dual path-following algorithms
********************************************************************************* ↙
******
 version  predcorr  gam  expon
   HKM      1      0.000   1
it pstep dstep pinfeas dinfeas  gap     mean(obj)    cputime    kap   tau    theta
------------------------------------------------------------------------------------ ↙
------
 0|0.000|0.000|1.3e+00|1.5e+01|3.6e+06| 3.240894e+04| 0:0:00|3.6e+06|1.0e+00|1.0e+00| ↙
chol 1  1
 1|0.869|0.869|1.8e-01|2.1e+00|5.4e+05| 3.028231e+04| 0:0:00|4.1e+05|1.0e+00|1.4e-01| ↙
chol 1  1
 2|0.373|0.373|1.9e-01|2.2e+00|8.7e+05| 4.315780e+04| 0:0:00|3.3e+05|8.2e-01|1.2e-01| ↙
chol 1  1
 3|1.000|1.000|2.0e-01|2.4e+00|2.0e+06| 8.869463e+04| 0:0:00|1.4e+05|4.8e-01|7.7e-02| ↙
chol 1  1
 4|0.655|0.655|8.0e-02|9.3e-01|6.0e+05| 5.272576e+04| 0:0:00|5.8e+03|6.3e-01|4.0e-02| ↙
chol 1  1
 5|0.829|0.829|3.2e-02|3.8e-01|2.2e+05| 3.373420e+04| 0:0:00|3.3e+02|7.5e-01|1.9e-02| ↙
chol 1  1
 6|1.000|1.000|3.5e-03|4.1e-02|1.7e+04| 4.551943e+03| 0:0:00|3.7e+01|1.1e+00|3.1e-03| ↙
chol 1  1
 7|0.805|0.805|1.4e-03|1.6e-02|6.4e+03| 1.752208e+03| 0:0:00|2.4e+01|1.2e+00|1.3e-03| ↙
chol 1  1
 8|1.000|1.000|9.5e-04|1.1e-02|4.6e+03| 1.213389e+03| 0:0:00|9.7e+00|1.2e+00|9.0e-04| ↙
chol 1  1
 9|1.000|1.000|4.7e-04|5.5e-03|2.2e+03| 5.805964e+02| 0:0:00|6.6e+00|1.2e+00|4.5e-04| ↙
chol 1  1
```

```
10|1.000|1.000|2.0e-04|2.4e-03|9.4e+02| 2.111368e+02| 0:0:00|3.2e+00|1.2e+00|1.9e-04| ↙
chol 1  1
11|1.000|1.000|8.8e-05|1.1e-03|4.1e+02| 6.823877e+01| 0:0:00|1.4e+00|1.3e+00|8.7e-05| ↙
chol 1  1
12|1.000|1.000|3.4e-05|4.3e-04|1.6e+02|-9.458201e-01| 0:0:00|6.0e-01|1.3e+00|3.5e-05| ↙
chol 1  1
13|1.000|1.000|1.4e-05|1.9e-04|6.0e+01|-2.642324e+01| 0:0:00|2.3e-01|1.3e+00|1.4e-05| ↙
chol 1  1
14|1.000|1.000|4.9e-06|9.1e-05|2.0e+01|-3.756830e+01| 0:0:00|8.7e-02|1.4e+00|5.3e-06| ↙
chol 1  1
15|1.000|1.000|2.0e-06|6.3e-05|7.5e+00|-4.099120e+01| 0:0:00|2.8e-02|1.5e+00|2.3e-06| ↙
chol 1  1
16|1.000|1.000|6.7e-07|5.1e-05|2.3e+00|-4.248756e+01| 0:0:00|1.1e-02|1.7e+00|8.7e-07| ↙
chol 1  1
17|1.000|1.000|2.4e-07|4.5e-05|7.7e-01|-4.293374e+01| 0:0:00|3.7e-03|1.8e+00|3.4e-07| ↙
chol 1  1
18|1.000|1.000|5.5e-08|4.0e-05|1.6e-01|-4.313088e+01| 0:0:00|1.5e-03|1.9e+00|8.2e-08| ↙
chol 1  1
19|1.000|1.000|1.3e-08|1.6e-05|4.0e-02|-4.317146e+01| 0:0:00|3.7e-04|1.9e+00|2.1e-08| ↙
chol 1  1
20|1.000|1.000|2.9e-09|6.5e-06|8.5e-03|-4.318181e+01| 0:0:00|9.1e-05|1.9e+00|4.5e-09| ↙
chol 1  1
21|1.000|1.000|7.0e-10|2.6e-06|2.0e-03|-4.318392e+01| 0:0:00|2.0e-05|2.0e+00|1.1e-09| ↙
chol 1  1
22|0.959|0.959|1.3e-10|1.1e-06|2.0e-04|-4.318454e+01| 0:0:00|5.4e-06|2.0e+00|1.1e-10| ↙
chol 1  1
23|1.000|1.000|6.0e-10|4.2e-07|5.0e-05|-4.318458e+01| 0:0:00|4.9e-07|2.0e+00|2.6e-11| ↙
chol 1  1
24|1.000|1.000|2.4e-09|4.2e-07|5.0e-06|-4.318459e+01| 0:0:00|1.2e-07|2.0e+00|2.1e-12| ↙
chol 1  1
25|1.000|1.000|1.7e-09|4.2e-07|9.4e-08|-4.318459e+01| 0:0:00|1.2e-08|2.0e+00|0.0e+00|
  Stop: relative gap < infeasibility
-----------------------------------------------------------------
 number of iterations   = 25
 primal objective value = -4.31845883e+01
 dual   objective value = -4.31845912e+01
 gap := trace(XZ)       = 4.95e-06
 relative gap           = 1.12e-07
 actual relative gap    = 3.31e-08
 rel. primal infeas     = 2.37e-09
 rel. dual   infeas     = 4.21e-07
 norm(X), norm(y), norm(Z) = 6.6e+00, 6.0e+01, 2.4e+01
 norm(A), norm(b), norm(C) = 8.0e+02, 7.0e+00, 7.6e+01
 Total CPU time (secs)  = 0.23
 CPU time per iteration = 0.01
 termination code       = -1
 DIMACS errors: 2.4e-09  0.0e+00  4.2e-07  0.0e+00  3.3e-08  5.7e-08
-----------------------------------------------------------------

ans =

   43.1846

Iteration   6   Total error is: 0.026749
```

```
 num. of constraints = 13
 dim. of socp   var  = 14,   num. of socp blk  =  1
 dim. of linear var  = 800
 12 linear variables from unrestricted variable.

 *** convert ublk to linear blk
********************************************************************************* ↙
******
   SDPT3: homogeneous self-dual path-following algorithms
********************************************************************************* ↙
******
 version  predcorr  gam  expon
   HKM      1      0.000   1
it pstep dstep pinfeas dinfeas  gap     mean(obj)    cputime    kap    tau    theta
------------------------------------------------------------------------------------ ↙
------
 0|0.000|0.000|1.3e+00|1.5e+01|3.8e+06| 3.354328e+04| 0:0:00|3.8e+06|1.0e+00|1.0e+00| ↙
chol 1  1
 1|0.866|0.866|1.8e-01|2.1e+00|5.7e+05| 3.137746e+04| 0:0:00|4.3e+05|1.0e+00|1.5e-01| ↙
chol 1  1
 2|0.378|0.378|2.0e-01|2.3e+00|9.4e+05| 4.524994e+04| 0:0:00|3.6e+05|8.2e-01|1.3e-01| ↙
chol 1  1
 3|1.000|1.000|2.1e-01|2.5e+00|2.2e+06| 9.512762e+04| 0:0:00|1.5e+05|4.7e-01|8.0e-02| ↙
chol 1  1
 4|0.644|0.644|8.2e-02|9.7e-01|6.5e+05| 5.626430e+04| 0:0:00|6.1e+03|6.2e-01|4.1e-02| ↙
chol 1  1
 5|0.843|0.843|3.4e-02|3.9e-01|2.5e+05| 3.708104e+04| 0:0:00|3.6e+02|7.3e-01|1.9e-02| ↙
chol 1  1
 6|1.000|1.000|3.3e-03|3.8e-02|1.7e+04| 4.383257e+03| 0:0:00|2.3e+01|1.1e+00|2.9e-03| ↙
chol 1  1
 7|0.794|0.794|1.3e-03|1.6e-02|6.5e+03| 1.775936e+03| 0:0:00|2.2e+01|1.2e+00|1.3e-03| ↙
chol 1  1
 8|1.000|1.000|9.2e-04|1.1e-02|4.6e+03| 1.218251e+03| 0:0:00|9.8e+00|1.2e+00|8.7e-04| ↙
chol 1  1
 9|1.000|1.000|4.5e-04|5.3e-03|2.2e+03| 5.773241e+02| 0:0:00|6.6e+00|1.2e+00|4.3e-04| ↙
chol 1  1
10|1.000|1.000|1.9e-04|2.3e-03|9.4e+02| 2.116282e+02| 0:0:00|3.2e+00|1.2e+00|1.9e-04| ↙
chol 1  1
11|1.000|1.000|8.2e-05|1.0e-03|4.0e+02| 6.541751e+01| 0:0:00|1.4e+00|1.3e+00|8.2e-05| ↙
chol 1  1
12|1.000|1.000|3.2e-05|4.0e-04|1.5e+02|-2.535225e+00| 0:0:00|5.8e-01|1.3e+00|3.2e-05| ↙
chol 1  1
13|1.000|1.000|1.3e-05|1.8e-04|5.9e+01|-2.687870e+01| 0:0:00|2.2e-01|1.3e+00|1.4e-05| ↙
chol 1  1
14|1.000|1.000|4.5e-06|8.8e-05|1.9e+01|-3.771031e+01| 0:0:00|8.4e-02|1.4e+00|5.0e-06| ↙
chol 1  1
15|1.000|1.000|1.8e-06|6.2e-05|7.2e+00|-4.100746e+01| 0:0:00|2.6e-02|1.5e+00|2.2e-06| ↙
chol 1  1
16|1.000|1.000|6.2e-07|5.1e-05|2.2e+00|-4.244891e+01| 0:0:00|1.1e-02|1.7e+00|8.2e-07| ↙
chol 1  1
17|1.000|1.000|2.2e-07|4.5e-05|7.3e-01|-4.288015e+01| 0:0:00|3.6e-03|1.8e+00|3.2e-07| ↙
chol 1  1
18|1.000|1.000|5.1e-08|4.0e-05|1.6e-01|-4.306575e+01| 0:0:00|1.4e-03|1.9e+00|7.7e-08| ↙
chol 1  1
19|1.000|1.000|1.3e-08|1.6e-05|4.0e-02|-4.310405e+01| 0:0:00|3.6e-04|1.9e+00|2.0e-08| ↙
```

```
chol 1  1
20|1.000|1.000|3.1e-09|6.5e-06|9.4e-03|-4.311426e+01| 0:0:00|9.3e-05|1.9e+00|4.8e-09| ↙
chol 1  1
21|1.000|1.000|7.9e-10|2.6e-06|2.4e-03|-4.311655e+01| 0:0:00|2.2e-05|2.0e+00|1.2e-09| ↙
chol 1  1
22|0.943|0.943|1.5e-10|1.1e-06|3.2e-04|-4.311727e+01| 0:0:00|6.6e-06|2.0e+00|1.7e-10| ↙
chol 1  1
23|0.965|0.965|2.9e-10|4.5e-07|5.8e-05|-4.311735e+01| 0:0:00|9.8e-07|2.0e+00|3.1e-11| ↙
chol 1  1
24|1.000|1.000|4.6e-09|4.2e-07|1.9e-05|-4.311736e+01| 0:0:00|1.4e-07|2.0e+00|8.7e-12| ↙
chol 1  1
25|1.000|1.000|1.3e-09|4.2e-07|1.5e-06|-4.311736e+01| 0:0:00|4.6e-08|2.0e+00|5.4e-13| ↙
chol 1  1
26|1.000|1.000|1.2e-09|4.2e-07|3.0e-08|-4.311737e+01| 0:0:00|3.7e-09|2.0e+00|0.0e+00| ↙
chol 1  1
27|1.000|1.000|1.7e-09|4.2e-07|3.7e-10|-4.311737e+01| 0:0:00|7.7e-11|2.0e+00|0.0e+00|
  Stop: relative gap < infeasibility
  lack of progess in infeas
-----------------------------------------------------------------
 number of iterations   = 27
 primal objective value = -4.31173528e+01
 dual   objective value = -4.31173653e+01
 gap := trace(XZ)       = 1.88e-05
 relative gap           = 4.27e-07
 actual relative gap    = 1.43e-07
 rel. primal infeas     = 4.57e-09
 rel. dual   infeas     = 4.21e-07
 norm(X), norm(y), norm(Z) = 6.8e+00, 6.0e+01, 2.4e+01
 norm(A), norm(b), norm(C) = 8.0e+02, 7.2e+00, 7.6e+01
 Total CPU time (secs)  = 0.19
 CPU time per iteration = 0.01
 termination code       = -9
 DIMACS errors: 4.6e-09  0.0e+00  4.2e-07  0.0e+00  1.4e-07  2.2e-07
-----------------------------------------------------------------

ans =

   43.1174

Iteration   7   Total error is: 0.026726

 num. of constraints = 13
 dim. of socp   var  = 14,   num. of socp blk  =  1
 dim. of linear var  = 800
 12 linear variables from unrestricted variable.

 *** convert ublk to linear blk
****************************************************************************** ↙
******
   SDPT3: homogeneous self-dual path-following algorithms
****************************************************************************** ↙
******
 version  predcorr  gam  expon
   HKM      1      0.000   1
it pstep dstep pinfeas dinfeas  gap     mean(obj)    cputime    kap   tau    theta
```

```
---------------------------------------------------------------------------- ↙
------
 0|0.000|0.000|1.2e+00|1.5e+01|3.9e+06| 3.469358e+04| 0:0:00|3.9e+06|1.0e+00|1.0e+00| ↙
chol 1  1
 1|0.855|0.855|2.0e-01|2.3e+00|6.5e+05| 3.272664e+04| 0:0:00|5.1e+05|1.0e+00|1.6e-01| ↙
chol 1  1
 2|0.389|0.389|2.2e-01|2.6e+00|1.1e+06| 4.896747e+04| 0:0:00|4.2e+05|8.0e-01|1.4e-01| ↙
chol 1  1
 3|1.000|1.000|2.6e-01|3.0e+00|3.1e+06| 1.101294e+05| 0:0:00|1.9e+05|4.4e-01|9.0e-02| ↙
chol 1  1
 4|0.608|0.608|9.0e-02|1.1e+00|7.8e+05| 6.382720e+04| 0:0:00|6.7e+03|6.0e-01|4.3e-02| ↙
chol 1  1
 5|0.746|0.746|4.9e-02|5.8e-01|4.3e+05| 5.204412e+04| 0:0:00|1.7e+03|6.4e-01|2.5e-02| ↙
chol 1  1
 6|0.764|0.764|1.9e-02|2.2e-01|1.3e+05| 2.412017e+04| 0:0:00|8.3e+01|8.5e-01|1.3e-02| ↙
chol 1  1
 7|0.996|0.996|1.4e-03|1.6e-02|7.1e+03| 1.689532e+03| 0:0:00|1.0e+02|1.2e+00|1.3e-03| ↙
chol 1  1
 8|0.760|0.760|9.7e-04|1.2e-02|5.0e+03| 1.327140e+03| 0:0:00|3.2e+01|1.2e+00|9.3e-04| ↙
chol 1  1
 9|0.972|0.972|5.8e-04|7.0e-03|3.0e+03| 7.621240e+02| 0:0:00|7.7e+00|1.2e+00|5.7e-04| ↙
chol 1  1
10|1.000|1.000|3.2e-04|3.9e-03|1.7e+03| 4.069885e+02| 0:0:00|4.4e+00|1.2e+00|3.1e-04| ↙
chol 1  1
11|1.000|1.000|1.2e-04|1.5e-03|6.2e+02| 1.244031e+02| 0:0:00|2.4e+00|1.2e+00|1.2e-04| ↙
chol 1  1
12|1.000|1.000|5.2e-05|6.5e-04|2.6e+02| 2.715596e+01| 0:0:00|9.1e-01|1.3e+00|5.3e-05| ↙
chol 1  1
13|1.000|1.000|1.7e-05|2.4e-04|8.5e+01|-2.007358e+01| 0:0:00|3.8e-01|1.3e+00|1.8e-05| ↙
chol 1  1
14|1.000|1.000|7.1e-06|1.1e-04|3.3e+01|-3.386732e+01| 0:0:00|1.2e-01|1.4e+00|7.8e-06| ↙
chol 1  1
15|1.000|1.000|2.3e-06|6.5e-05|9.9e+00|-4.029816e+01| 0:0:00|4.7e-02|1.5e+00|2.7e-06| ↙
chol 1  1
16|1.000|1.000|9.1e-07|5.2e-05|3.6e+00|-4.199853e+01| 0:0:00|1.3e-02|1.6e+00|1.2e-06| ↙
chol 1  1
17|1.000|1.000|2.7e-07|4.5e-05|9.7e-01|-4.277948e+01| 0:0:00|5.7e-03|1.8e+00|3.9e-07| ↙
chol 1  1
18|1.000|1.000|8.6e-08|4.0e-05|2.8e-01|-4.298811e+01| 0:0:00|1.7e-03|1.9e+00|1.3e-07| ↙
chol 1  1
19|0.959|0.959|1.7e-08|1.7e-05|5.3e-02|-4.306549e+01| 0:0:00|6.7e-04|1.9e+00|2.6e-08| ↙
chol 1  1
20|1.000|1.000|7.0e-09|6.5e-06|2.2e-02|-4.307438e+01| 0:0:00|1.2e-04|1.9e+00|1.1e-08| ↙
chol 1  1
21|0.984|0.984|1.1e-09|2.7e-06|3.5e-03|-4.308104e+01| 0:0:00|5.3e-05|2.0e+00|1.8e-09| ↙
chol 1  1
22|0.800|0.800|6.7e-10|1.4e-06|2.0e-03|-4.308146e+01| 0:0:00|1.7e-05|2.0e+00|1.0e-09| ↙
chol 1  1
23|0.842|0.842|3.2e-10|5.8e-07|9.7e-04|-4.308184e+01| 0:0:00|6.9e-06|2.0e+00|4.8e-10| ↙
chol 1  1
24|0.378|0.378|1.6e-10|4.3e-07|8.5e-04|-4.308190e+01| 0:0:00|5.2e-06|2.0e+00|4.1e-10| ↙
chol 1  1
25|0.558|0.558|3.4e-11|2.3e-07|5.9e-04|-4.308200e+01| 0:0:00|3.4e-06|2.0e+00|2.8e-10| ↙
chol 1  1
26|0.420|0.420|2.4e-10|1.5e-07|4.8e-04|-4.308206e+01| 0:0:00|2.6e-06|1.9e+00|2.2e-10| ↙
```

```
chol 1  1
27|0.367|0.367|6.4e-10|9.8e-08|4.1e-04|-4.308209e+01| 0:0:00|2.1e-06|1.9e+00|1.8e-10| ↙
chol 1  1
28|0.466|0.466|9.3e-10|5.5e-08|3.2e-04|-4.308214e+01| 0:0:00|1.6e-06|1.9e+00|1.4e-10| ↙
chol 1  1
29|0.227|0.227|1.4e-09|4.4e-08|3.0e-04|-4.308215e+01| 0:0:00|1.4e-06|1.9e+00|1.3e-10| ↙
chol 1  1
30|0.383|0.383|2.1e-09|2.7e-08|2.6e-04|-4.308218e+01| 0:0:00|1.1e-06|1.9e+00|1.1e-10| ↙
chol 1  1
31|0.402|0.402|2.8e-09|1.7e-08|2.2e-04|-4.308220e+01| 0:0:00|9.3e-07|1.9e+00|9.0e-11| ↙
chol 1  1
32|0.326|0.326|4.2e-09|1.1e-08|2.0e-04|-4.308222e+01| 0:0:00|8.0e-07|1.9e+00|7.9e-11| ↙
chol 1  1
33|0.371|0.371|6.5e-09|7.4e-09|1.7e-04|-4.308223e+01| 0:0:00|6.8e-07|1.9e+00|6.8e-11| ↙
chol 1  1
34|0.557|0.557|8.6e-09|3.6e-09|1.3e-04|-4.308226e+01| 0:0:00|5.3e-07|1.9e+00|5.4e-11| ↙
chol 1  1
35|0.563|0.563|1.1e-08|1.9e-09|1.1e-04|-4.308227e+01| 0:0:00|4.1e-07|1.8e+00|4.5e-11| ↙
chol 1  1
36|0.162|0.162|2.1e-08|1.7e-09|1.1e-04|-4.308227e+01| 0:0:00|3.9e-07|1.8e+00|4.5e-11|
  Stop: progress is too slow
-----------------------------------------------------------------
 number of iterations   = 36
 primal objective value = -4.30822295e+01
 dual   objective value = -4.30823157e+01
 gap := trace(XZ)       = 1.08e-04
 relative gap           = 2.45e-06
 actual relative gap    = 9.89e-07
 rel. primal infeas     = 2.13e-08
 rel. dual   infeas     = 1.67e-09
 norm(X), norm(y), norm(Z) = 4.6e+03, 6.0e+01, 2.4e+01
 norm(A), norm(b), norm(C) = 8.0e+02, 7.5e+00, 7.6e+01
 Total CPU time (secs)  = 0.33
 CPU time per iteration = 0.01
 termination code       = -5
 DIMACS errors: 2.1e-08  0.0e+00  1.7e-09  0.0e+00  9.9e-07  1.2e-06
-----------------------------------------------------------------

ans =

   43.0823

Iteration   8   Total error is: 0.026713
The total representation error of the testing signals is: 0.2627
>>
```