```
>> demo_Polynomial_Dictionary_Learning
Starting to train the dictionary
solving the quadratic problem with YALMIP...
SeDuMi 1.32 by AdvOL, 2005-2008 and Jos F. Sturm, 1998-2003.
Alg = 2: xz-corrector, theta = 0.250, beta = 0.500
eqs m = 25, order n = 803, dim = 827, blocks = 2
nnz(A) = 5102 + 0, nnz(ADA) = 625, nnz(L) = 325
 it :     b*y       gap    delta  rate   t/tP*  t/tD*   feas cg cg  prec
  0 :            6.90E+00 0.000
  1 :  -1.08E+01 5.78E+00 0.000 0.8377 0.9000 0.9000   9.96  1  1  1.9E+00
  2 :  -3.41E+01 4.81E+00 0.000 0.8313 0.9000 0.9000   8.85  1  1  7.1E-01
  3 :  -4.33E+01 3.03E+00 0.000 0.6309 0.9000 0.9000   5.67  1  1  1.5E-01
  4 :  -4.73E+01 9.86E-01 0.000 0.3250 0.9000 0.9000   2.88  1  1  2.7E-02
  5 :  -4.78E+01 5.84E-02 0.000 0.0592 0.9900 0.9900   1.44  1  1  1.3E-03
  6 :  -4.78E+01 2.58E-02 0.000 0.4419 0.9000 0.9000   1.13  1  1  5.3E-04
  7 :  -4.78E+01 2.22E-03 0.000 0.0859 0.9900 0.9900   1.09  1  1  4.3E-05
  8 :  -4.78E+01 4.63E-04 0.000 0.2091 0.9000 0.9000   1.14  1  1  8.3E-06
  9 :  -4.78E+01 8.82E-05 0.000 0.1903 0.9000 0.9000   1.13  1  1  1.5E-06
 10 :  -4.78E+01 4.21E-06 0.000 0.0478 0.9900 0.9900   1.14  1  1  6.4E-08
 11 :  -4.78E+01 3.34E-07 0.000 0.0792 0.9900 0.9900   1.09  1  2  4.9E-09
 12 :  -4.78E+01 2.75E-08 0.000 0.0824 0.9900 0.9900   1.05  2  2  3.9E-10
 13 :  -4.78E+01 6.20E-09 0.000 0.2256 0.9000 0.9000   1.03  2  2  8.7E-11
 14 :  -4.78E+01 5.26E-11 0.000 0.0085 0.9990 0.9990   1.01  2  3  6.6E-13
 15 :  -4.78E+01 2.41E-11 0.000 0.4576 0.9000 0.9000   1.00 12 15  3.0E-13
 16 :  -4.78E+01 2.08E-11 0.000 0.8642 0.9000 0.9000   0.91 12 12  2.7E-13
 17 :  -4.78E+01 6.78E-12 0.000 0.3259 0.9000 0.9000   0.02 12 12  5.6E-13
 18 :  -4.78E+01 1.85E-12 0.159 0.2729 0.9000 0.9000  -0.70 13 13  8.0E-13
 19 :  -4.78E+01 7.87E-14 0.000 0.0425 0.9900 0.9900  -0.92  9 10  1.9E-12
 20 :  -4.78E+01 5.49E-15 0.390 0.0697 0.9900 0.9900  -1.00  5  5  2.7E-13
 21 :  -4.78E+01 1.57E-16 0.324 0.0286 0.9900 0.9900  -1.00  4  4  2.9E-13
 22 :  -4.78E+01 8.23E-19 0.497 0.0053 0.9968 0.9968  -1.00  3  3  2.7E-13
 23 :  -4.78E+01 4.12E-19 0.331 0.4999 0.6750 0.6750  -1.00  3  3  2.7E-13
 24 :  -4.78E+01 2.26E-19 0.435 0.5494 0.9000 0.9000  -1.00  3  3  2.6E-13
 25 :  -4.78E+01 1.61E-19 0.135 0.7123 0.9000 0.9000  -0.99  3  3  2.6E-13
 26 :  -4.78E+01 1.41E-19 0.011 0.8780 0.9000 0.9000  -0.94  2  2  2.6E-13
 27 :  -4.78E+01 5.85E-20 0.000 0.4134 0.9000 0.9000  -0.97  3  2  2.5E-13
 28 :  -4.78E+01 4.09E-20 0.000 0.6995 0.9000 0.9000  -0.95  3  2  2.4E-13
 29 :  -4.78E+01 1.97E-20 0.000 0.4828 0.9000 0.9000  -0.91  3  3  2.4E-13
 30 :  -4.78E+01 1.40E-20 0.000 0.7071 0.9000 0.9000  -0.79  3  2  2.2E-13
 31 :  -4.78E+01 5.11E-21 0.000 0.3660 0.9000 0.9000  -0.86  2  3  2.2E-13
 32 :  -4.78E+01 2.88E-21 0.000 0.5641 0.9000 0.9000  -0.75  2  3  1.9E-13
 33 :  -4.79E+01 1.48E-21 0.000 0.5120 0.9000 0.9000  -0.68  3  3  1.8E-13
 34 :  -4.79E+01 7.08E-22 0.000 0.4796 0.9000 0.9000  -0.71  2  3  1.6E-13
 35 :  -4.80E+01 3.60E-22 0.000 0.5090 0.9000 0.9000  -0.50  2  3  1.3E-13
 36 :  -4.82E+01 1.98E-22 0.000 0.5483 0.9000 0.9000  -0.13  3  3  9.1E-14
 37 :  -4.83E+01 1.15E-22 0.000 0.5805 0.9000 0.9000  -0.04  3  3  7.1E-14
 38 :  -4.86E+01 4.47E-23 0.000 0.3902 0.9000 0.9000   0.68  3  2  2.7E-14
 39 :  -4.87E+01 2.24E-23 0.000 0.5011 0.9000 0.9000   0.62  3  3  1.5E-14
 40 :  -4.87E+01 1.94E-23 0.000 0.8671 0.9000 0.9000   0.78  3  3  1.4E-14
 41 :  -4.87E+01 1.70E-23 0.000 0.8766 0.9000 0.9000  -0.29  3  3  1.4E-14
 42 :  -4.87E+01 1.50E-23 0.000 0.8815 0.9000 0.9000   0.41  3  3  1.2E-14
 43 :  -4.87E+01 1.34E-23 0.000 0.8891 0.9000 0.9000  -0.14  3  3  1.2E-14
 44 :  -4.88E+01 1.10E-23 0.000 0.8246 0.9000 0.9000   0.34  3  3  1.0E-14
 45 :  -4.88E+01 9.41E-24 0.000 0.8545 0.9000 0.9000  -0.06  3  3  9.8E-15
 46 :  -4.88E+01 6.13E-24 0.000 0.6514 0.9000 0.9000   0.18  3  3  6.9E-15
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 47 :  -4.89E+01 2.92E-24 0.000 0.4768 0.9000 0.9000   0.88  3  3  3.2E-15
 48 :  -4.89E+01 2.48E-24 0.000 0.8484 0.9000 0.9000   0.80  3  3  2.9E-15
 49 :  -4.89E+01 1.87E-24 0.000 0.7535 0.9000 0.9000  -0.29  3  3  3.2E-15
 50 :  -4.89E+01 1.07E-24 0.000 0.5725 0.9000 0.9000  -0.59  3  3  3.6E-15
 51 :  -4.89E+01 4.22E-25 0.000 0.3944 0.9000 0.9000  -0.67  3  3  3.2E-15
 52 :  -4.89E+01 1.95E-25 0.000 0.4613 0.9000 0.9000  -0.67  3  3  2.8E-15
 53 :  -4.90E+01 1.37E-25 0.000 0.7052 0.9000 0.9000  -0.57  3  3  2.7E-15
 54 :  -4.91E+01 8.43E-26 0.000 0.6141 0.9000 0.9000  -0.53  3  3  2.3E-15
 55 :  -4.91E+01 5.57E-26 0.000 0.6608 0.9000 0.9000  -0.58  3  3  2.1E-15
Run into numerical problems.

iter seconds digits       c*x               b*y
 55      1.4   2.2 -4.8815830028e+01 -4.9113537714e+01
|Ax-b| =   4.1e-13, [Ay-c]_+ =   1.7E-14, |x|=  3.5e+13, |y|=  5.5e+01
No sensible solution found.

Detailed timing (sec)
   Pre          IPM          Post
0.000E+00    3.280E-01    0.000E+00
Max-norms: ||b||=1, ||c|| = 5.256842e+01,
Cholesky |add|=0, |skip| = 0, ||L.L|| = 3.79611.

ans =

      yalmiptime: 0.0614
      solvertime: 0.3286
            info: 'Numerical problems (SeDuMi-1.3)'
         problem: 4
    solveroutput: [1x1 struct]


ans =

   49.0651

SeDuMi 1.32 by AdvOL, 2005-2008 and Jos F. Sturm, 1998-2003.
Alg = 2: xz-corrector, theta = 0.250, beta = 0.500
eqs m = 25, order n = 803, dim = 827, blocks = 2
nnz(A) = 5030 + 0, nnz(ADA) = 625, nnz(L) = 325
 it :     b*y       gap    delta  rate   t/tP*  t/tD*   feas cg cg  prec
  0 :            1.42E+01 0.000
  1 :   1.93E+01 1.20E+01 0.000 0.8438 0.9000 0.9000   9.85  1  1  2.1E+00
  2 :  -1.97E+01 9.74E+00 0.000 0.8134 0.9000 0.9000   8.45  1  1  7.2E-01
  3 :  -2.81E+01 7.79E+00 0.000 0.8001 0.9000 0.9000   5.24  1  1  4.3E-01
  4 :  -4.33E+01 2.07E+00 0.000 0.2654 0.9000 0.9000   4.70  1  1  3.1E-02
  5 :  -4.34E+01 5.30E-01 0.000 0.2563 0.9000 0.9000   1.38  1  1  6.8E-03
  6 :  -4.34E+01 1.41E-01 0.000 0.2662 0.9000 0.9000   1.13  1  1  1.7E-03
  7 :  -4.34E+01 5.87E-02 0.000 0.4163 0.9000 0.9000   1.07  1  1  6.9E-04
  8 :  -4.34E+01 2.40E-02 0.000 0.4091 0.9000 0.9000   1.06  1  1  2.8E-04
  9 :  -4.34E+01 7.65E-03 0.000 0.3182 0.9000 0.9000   1.05  1  1  8.5E-05
 10 :  -4.34E+01 2.82E-03 0.000 0.3693 0.9000 0.9000   1.06  1  1  3.0E-05
 11 :  -4.34E+01 9.07E-04 0.000 0.3211 0.9000 0.9000   1.06  1  1  9.4E-06
 12 :  -4.34E+01 3.30E-04 0.000 0.3644 0.9000 0.9000   1.07  1  1  3.3E-06
 13 :  -4.34E+01 1.07E-04 0.000 0.3231 0.9000 0.9000   1.08  1  1  1.0E-06
 14 :  -4.34E+01 3.19E-05 0.000 0.2990 0.9000 0.9000   1.09  1  1  2.9E-07
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 15 :  -4.34E+01 6.93E-06 0.000 0.2171 0.9000 0.9000   1.08  1  1  6.0E-08
 16 :  -4.34E+01 5.72E-07 0.000 0.0825 0.9900 0.9900   1.08  1  2  4.7E-09
 17 :  -4.34E+01 1.32E-07 0.000 0.2316 0.9000 0.9000   1.08  2  2  1.0E-09
 18 :  -4.34E+01 2.76E-08 0.000 0.2082 0.9000 0.9000   1.04  2  2  2.1E-10
 19 :  -4.34E+01 2.51E-09 0.000 0.0910 0.9900 0.9900   1.03  2  2  1.9E-11
 20 :  -4.34E+01 4.82E-10 0.000 0.1922 0.9000 0.9000   1.02  5  5  3.6E-12
 21 :  -4.34E+01 2.76E-11 0.000 0.0572 0.9900 0.9900   1.01  7  7  2.0E-13
 22 :  -4.34E+01 2.33E-11 0.000 0.8440 0.9000 0.9000   0.98 10 10  1.7E-13
 23 :  -4.34E+01 2.07E-11 0.000 0.8903 0.9000 0.9000   0.48 10 10  1.7E-13
 24 :  -4.34E+01 1.57E-12 0.000 0.0758 0.9900 0.9900  -0.96 10 10  1.3E-12
 25 :  -4.34E+01 8.06E-14 0.171 0.0513 0.9900 0.9900  -0.92  7  7  2.2E-12
 26 :  -4.34E+01 3.71E-15 0.000 0.0460 0.9900 0.9900  -1.00  4  4  1.7E-13
 27 :  -4.34E+01 1.03E-16 0.213 0.0279 0.9900 0.9900  -1.00  4  3  1.7E-13
 28 :  -4.34E+01 6.94E-17 0.339 0.6708 0.9000 0.9000  -1.00  3  4  1.7E-13
 29 :  -4.34E+01 4.49E-17 0.000 0.6478 0.9000 0.9000  -1.00  3  3  1.7E-13
 30 :  -4.34E+01 1.92E-17 0.000 0.4279 0.9000 0.9000  -1.00  4  3  1.6E-13
 31 :  -4.34E+01 1.07E-17 0.000 0.5570 0.9000 0.9000  -1.00  3  2  1.6E-13
 32 :  -4.34E+01 3.94E-18 0.000 0.3676 0.9000 0.9000  -1.00  3  2  1.6E-13
 33 :  -4.34E+01 1.88E-18 0.000 0.4774 0.9000 0.9000  -1.00  3  3  1.6E-13
 34 :  -4.34E+01 7.34E-19 0.000 0.3904 0.9000 0.9000  -1.00  3  3  1.6E-13
 35 :  -4.34E+01 3.42E-19 0.000 0.4662 0.9000 0.9000  -1.00  3  3  1.6E-13
 36 :  -4.34E+01 1.44E-19 0.000 0.4225 0.9000 0.9000  -0.99  3  3  1.6E-13
 37 :  -4.34E+01 7.02E-20 0.000 0.4859 0.9000 0.9000  -0.98  3  3  1.6E-13
 38 :  -4.34E+01 3.02E-20 0.000 0.4294 0.9000 0.9000  -0.96  3  3  1.6E-13
 39 :  -4.34E+01 1.59E-20 0.000 0.5280 0.9000 0.9000  -0.90  3  3  1.5E-13
 40 :  -4.34E+01 7.49E-21 0.000 0.4703 0.9000 0.9000  -0.85  3  3  1.4E-13
 41 :  -4.35E+01 4.42E-21 0.000 0.5900 0.9000 0.9000  -0.63  3  3  1.2E-13
 42 :  -4.35E+01 2.22E-21 0.000 0.5017 0.9000 0.9000  -0.61  3  2  1.1E-13
 43 :  -4.35E+01 1.21E-21 0.000 0.5460 0.9000 0.9000  -0.36  2  2  8.1E-14
 44 :  -4.36E+01 6.58E-22 0.000 0.5434 0.9000 0.9000  -0.32  2  3  6.8E-14
 45 :  -4.37E+01 2.90E-22 0.000 0.4408 0.9000 0.9000   0.08  2  3  3.6E-14
 46 :  -4.38E+01 1.31E-22 0.000 0.4506 0.9000 0.9000   0.28  2  2  2.1E-14
 47 :  -4.38E+01 9.82E-23 0.000 0.7519 0.9000 0.9000   0.93  2  3  1.6E-14
 48 :  -4.38E+01 6.28E-23 0.000 0.6398 0.9000 0.9000   0.44  3  2  1.5E-14
 49 :  -4.38E+01 5.71E-23 0.000 0.9092 0.9000 0.9000  -0.54  3  3  1.4E-14
 50 :  -4.38E+01 3.62E-23 0.000 0.6335 0.9000 0.9000   0.78  3  2  8.4E-15
 51 :  -4.39E+01 2.80E-23 0.000 0.7725 0.9000 0.9000   0.69  3  3  6.9E-15
 52 :  -4.39E+01 1.59E-23 0.000 0.5692 0.9000 0.9000   0.86  3  3  3.9E-15
 53 :  -4.39E+01 1.39E-23 0.000 0.8718 0.9000 0.9000   0.87  3  3  3.4E-15
 54 :  -4.39E+01 8.58E-24 0.000 0.6183 0.9000 0.9000   0.95  3  3  2.1E-15
 55 :  -4.39E+01 7.53E-24 0.000 0.8779 0.9000 0.9000   0.78  3  3  1.9E-15
 56 :  -4.39E+01 6.12E-24 0.000 0.8133 0.9000 0.9000   0.86  3  3  1.6E-15
 57 :  -4.39E+01 4.37E-24 0.000 0.7132 0.9000 0.9000  -0.21  3  3  1.9E-15
 58 :  -4.39E+01 2.89E-24 0.000 0.6615 0.9000 0.9000  -0.45  3  3  1.9E-15
Run into numerical problems.

iter seconds digits       c*x               b*y
 58      1.7   Inf -4.3927289289e+01 -4.3909453943e+01
|Ax-b| =   5.4e-14, [Ay-c]_+ =   1.9E-14, |x|=  2.7e+12, |y|=  6.0e+01

Detailed timing (sec)
   Pre          IPM          Post
0.000E+00    3.590E-01    0.000E+00
Max-norms: ||b||=3.145303e+00, ||c|| = 5.256842e+01,
Cholesky |add|=0, |skip| = 0, ||L.L|| = 403.292.
```

```
ans =

      yalmiptime: 0.0557
      solvertime: 0.3653
            info: 'Numerical problems (SeDuMi-1.3)'
         problem: 4
    solveroutput: [1x1 struct]


ans =

   43.9092

Iteration   2   Total error is: 0.026973
SeDuMi 1.32 by AdvOL, 2005-2008 and Jos F. Sturm, 1998-2003.
Alg = 2: xz-corrector, theta = 0.250, beta = 0.500
eqs m = 25, order n = 803, dim = 827, blocks = 2
nnz(A) = 5102 + 0, nnz(ADA) = 625, nnz(L) = 325
 it :     b*y       gap    delta  rate   t/tP*  t/tD*   feas cg cg  prec
  0 :            2.06E+01 0.000
  1 :   1.02E+01 1.75E+01 0.000 0.8530 0.9000 0.9000  11.55  1  1  1.9E+00
  2 :  -2.26E+01 1.44E+01 0.000 0.8238 0.9000 0.9000   9.31  1  1  6.5E-01
  3 :  -2.66E+01 1.19E+01 0.000 0.8237 0.9000 0.9000   4.92  1  1  4.1E-01
  4 :  -4.35E+01 2.48E+00 0.000 0.2085 0.9000 0.9000   4.49  1  1  2.7E-02
  5 :  -4.29E+01 2.44E-01 0.000 0.0986 0.9900 0.9900   1.30  1  1  2.2E-03
  6 :  -4.29E+01 7.67E-02 0.000 0.3138 0.9000 0.9000   1.15  1  1  6.5E-04
  7 :  -4.29E+01 2.33E-02 0.000 0.3040 0.9000 0.9000   1.09  1  1  1.9E-04
  8 :  -4.30E+01 6.88E-03 0.000 0.2951 0.9000 0.9000   1.08  1  1  5.3E-05
  9 :  -4.30E+01 2.17E-03 0.000 0.3160 0.9000 0.9000   1.08  1  1  1.6E-05
 10 :  -4.30E+01 6.27E-04 0.000 0.2883 0.9000 0.9000   1.09  1  1  4.4E-06
 11 :  -4.30E+01 1.50E-04 0.000 0.2400 0.9000 0.9000   1.10  1  1  9.8E-07
 12 :  -4.30E+01 3.23E-05 0.000 0.2147 0.9000 0.9000   1.11  1  1  2.0E-07
 13 :  -4.30E+01 2.77E-06 0.009 0.0859 0.9900 0.9900   1.10  1  1  1.6E-08
 14 :  -4.30E+01 9.05E-07 0.000 0.3262 0.9000 0.9000   1.07  2  2  5.0E-09
 15 :  -4.30E+01 4.59E-08 0.000 0.0507 0.9900 0.9900   1.04  2  2  2.4E-10
 16 :  -4.30E+01 4.26E-09 0.000 0.0928 0.9900 0.9900   1.04  3  3  2.2E-11
 17 :  -4.30E+01 8.88E-10 0.000 0.2084 0.9000 0.9000   1.01  5  5  4.6E-12
 18 :  -4.30E+01 1.90E-10 0.000 0.2143 0.9000 0.9000   1.01 10 10  9.7E-13
 19 :  -4.30E+01 4.44E-11 0.000 0.2331 0.9000 0.9000   1.00 24 31  2.3E-13
 20 :  -4.30E+01 2.94E-11 0.000 0.6633 0.9000 0.9000   0.98 41 39  1.5E-13
 21 :  -4.30E+01 2.71E-11 0.000 0.9226 0.9000 0.9000   0.78 28 30  1.5E-13
 22 :  -4.30E+01 9.04E-12 0.000 0.3331 0.9000 0.9000  -0.70 27 33  4.5E-13
 23 :  -4.30E+01 1.93E-12 0.000 0.2131 0.9000 0.9000  -0.67 23 23  1.0E-12
 24 :  -4.30E+01 1.26E-13 0.422 0.0655 0.9900 0.9900  -0.93 15 15  4.2E-12
 25 :  -4.30E+01 2.93E-15 0.231 0.0232 0.9900 0.9900  -1.00  6  8  1.9E-13
 26 :  -4.30E+01 3.26E-17 0.454 0.0111 0.9945 0.9945  -1.00  3  3  1.8E-13
 27 :  -4.30E+01 5.30E-18 0.441 0.1623 0.9000 0.9000  -1.00  4  3  1.8E-13
 28 :  -4.30E+01 3.88E-18 0.147 0.7332 0.4500 0.4500  -1.00  2  3  1.8E-13
 29 :  -4.30E+01 2.10E-18 0.262 0.5400 0.9000 0.9000  -1.00  2  3  1.7E-13
 30 :  -4.30E+01 1.46E-18 0.000 0.6940 0.9000 0.9000  -0.99  2  2  1.6E-13
 31 :  -4.30E+01 5.24E-19 0.000 0.3601 0.9000 0.9000  -0.99  2  2  1.4E-13
 32 :  -4.30E+01 3.60E-19 0.000 0.6869 0.9000 0.9000  -0.98  3  2  1.4E-13
 33 :  -4.30E+01 1.43E-19 0.000 0.3972 0.9000 0.9000  -0.97  3  2  1.3E-13
 34 :  -4.30E+01 9.25E-20 0.000 0.6470 0.9000 0.9000  -0.93  2  3  1.3E-13
```

```
 35 :  -4.30E+01 4.16E-20 0.000 0.4499 0.9000 0.9000  -0.91  3  3  1.2E-13
 36 :  -4.30E+01 2.71E-20 0.000 0.6513 0.9000 0.9000  -0.78  2  2  1.1E-13
 37 :  -4.30E+01 1.29E-20 0.000 0.4773 0.9000 0.9000  -0.78  2  2  1.1E-13
 38 :  -4.30E+01 8.49E-21 0.000 0.6561 0.9000 0.9000  -0.47  3  2  8.9E-14
 39 :  -4.30E+01 5.41E-21 0.000 0.6368 0.9000 0.9000  -0.44  3  3  8.1E-14
 40 :  -4.30E+01 2.85E-21 0.000 0.5276 0.9000 0.9000  -0.58  2  2  8.0E-14
 41 :  -4.30E+01 1.39E-21 0.000 0.4873 0.9000 0.9000  -0.59  3  3  6.7E-14
 42 :  -4.31E+01 7.67E-22 0.000 0.5522 0.9000 0.9000  -0.44  3  3  5.6E-14
 43 :  -4.32E+01 3.98E-22 0.000 0.5187 0.9000 0.9000  -0.14  3  3  3.9E-14
 44 :  -4.33E+01 2.13E-22 0.000 0.5354 0.9000 0.9000  -0.04  3  3  2.9E-14
 45 :  -4.34E+01 1.18E-22 0.000 0.5514 0.9000 0.9000   0.66  3  3  1.6E-14
 46 :  -4.34E+01 1.03E-22 0.000 0.8755 0.9000 0.9000   0.64  3  3  1.5E-14
 47 :  -4.34E+01 9.03E-23 0.000 0.8780 0.9000 0.9000  -0.28  2  3  1.5E-14
 48 :  -4.35E+01 5.40E-23 0.000 0.5975 0.9000 0.9000   0.44  3  3  8.5E-15
 49 :  -4.35E+01 4.27E-23 0.000 0.7902 0.9000 0.9000   0.53  2  3  7.2E-15
 50 :  -4.35E+01 3.28E-23 0.000 0.7687 0.9000 0.9000   0.50  2  3  5.7E-15
 51 :  -4.36E+01 2.30E-23 0.000 0.7012 0.9000 0.9000   0.68  3  3  4.3E-15
 52 :  -4.36E+01 1.71E-23 0.000 0.7429 0.9000 0.9000   0.43  3  3  4.2E-15
 53 :  -4.36E+01 1.01E-23 0.000 0.5915 0.9000 0.9000  -0.21  3  3  2.8E-15
 54 :  -4.36E+01 8.07E-24 0.000 0.7990 0.9000 0.9000   0.85  2  3  2.3E-15
 55 :  -4.36E+01 7.83E-24 0.000 0.9703 0.9000 0.9000  -0.01  3  3  2.3E-15
 56 :  -4.36E+01 5.03E-24 0.000 0.6418 0.9000 0.9000  -0.28  3  3  2.8E-15
 57 :  -4.36E+01 2.62E-24 0.000 0.5222 0.9000 0.9000  -0.47  3  3  2.6E-15
Run into numerical problems.

iter seconds digits       c*x               b*y
 57      1.9   3.5 -4.3586890177e+01 -4.3600699259e+01
|Ax-b| =   1.6e-13, [Ay-c]_+ =   1.8E-14, |x|=  7.1e+12, |y|=  6.0e+01

Detailed timing (sec)
   Pre          IPM          Post
0.000E+00    4.210E-01    0.000E+00
Max-norms: ||b||=5.018828e+00, ||c|| = 5.256842e+01,
Cholesky |add|=0, |skip| = 0, ||L.L|| = 134.5.

ans =

      yalmiptime: 0.0562
      solvertime: 0.4268
            info: 'Numerical problems (SeDuMi-1.3)'
         problem: 4
    solveroutput: [1x1 struct]


ans =

   43.5997

Iteration   3   Total error is: 0.026878
SeDuMi 1.32 by AdvOL, 2005-2008 and Jos F. Sturm, 1998-2003.
Alg = 2: xz-corrector, theta = 0.250, beta = 0.500
eqs m = 25, order n = 803, dim = 827, blocks = 2
nnz(A) = 5102 + 0, nnz(ADA) = 625, nnz(L) = 325
 it :     b*y       gap    delta  rate   t/tP*  t/tD*   feas cg cg  prec
  0 :            9.75E+01 0.000
```

```
  1 :  -2.93E+01 7.69E+01 0.000 0.7890 0.9000 0.9000  13.83  1  1  1.1E+00
  2 :  -3.68E+01 4.82E+01 0.000 0.6269 0.9000 0.9000  12.47  1  1  2.1E-01
  3 :  -4.13E+01 1.42E+01 0.000 0.2938 0.9000 0.9000   2.72  1  1  4.6E-02
  4 :  -4.20E+01 3.62E+00 0.000 0.2554 0.9000 0.9000   1.39  1  1  9.6E-03
  5 :  -4.21E+01 1.23E+00 0.000 0.3386 0.9000 0.9000   1.16  1  1  3.0E-03
  6 :  -4.21E+01 5.55E-01 0.000 0.4531 0.9000 0.9000   1.10  1  1  1.3E-03
  7 :  -4.21E+01 2.95E-01 0.000 0.5316 0.9000 0.9000   1.07  1  1  6.8E-04
  8 :  -4.21E+01 1.29E-01 0.000 0.4376 0.9000 0.9000   1.06  1  1  2.9E-04
  9 :  -4.21E+01 7.04E-02 0.000 0.5449 0.9000 0.9000   1.06  1  1  1.5E-04
 10 :  -4.21E+01 2.14E-02 0.000 0.3036 0.9000 0.9000   1.06  1  1  4.5E-05
 11 :  -4.21E+01 8.06E-03 0.000 0.3775 0.9000 0.9000   1.07  1  1  1.6E-05
 12 :  -4.21E+01 1.48E-03 0.000 0.1840 0.9000 0.9000   1.08  1  1  2.8E-06
 13 :  -4.21E+01 1.26E-04 0.000 0.0847 0.9900 0.9900   1.11  1  1  2.2E-07
 14 :  -4.21E+01 7.53E-06 0.000 0.0599 0.9900 0.9900   1.16  1  1  1.1E-08
 15 :  -4.21E+01 2.61E-07 0.000 0.0347 0.9900 0.9900   1.08  2  2  3.7E-10
 16 :  -4.21E+01 4.89E-08 0.000 0.1874 0.9000 0.9000   1.06  3  3  6.6E-11
 17 :  -4.21E+01 1.94E-09 0.000 0.0398 0.9900 0.9900   1.02  6  5  2.6E-12
 18 :  -4.21E+01 1.55E-10 0.382 0.0797 0.9900 0.9900   1.01 11 12  2.1E-13
Run into numerical problems.

iter seconds digits       c*x               b*y
 18      0.4  11.3 -4.2141890023e+01 -4.2141890023e+01
|Ax-b| =   9.6e-13, [Ay-c]_+ =   1.1E-12, |x|=  7.9e+00, |y|=  6.2e+01

Detailed timing (sec)
   Pre          IPM          Post
0.000E+00    1.090E-01    0.000E+00
Max-norms: ||b||=2.769179e+01, ||c|| = 5.256842e+01,
Cholesky |add|=0, |skip| = 7, ||L.L|| = 49.4278.

ans =

      yalmiptime: 0.0618
      solvertime: 0.1102
            info: 'Numerical problems (SeDuMi-1.3)'
         problem: 4
    solveroutput: [1x1 struct]


ans =

   42.1419

Iteration   4   Total error is: 0.026477
SeDuMi 1.32 by AdvOL, 2005-2008 and Jos F. Sturm, 1998-2003.
Alg = 2: xz-corrector, theta = 0.250, beta = 0.500
eqs m = 25, order n = 803, dim = 827, blocks = 2
nnz(A) = 5066 + 0, nnz(ADA) = 625, nnz(L) = 325
 it :     b*y       gap    delta  rate   t/tP*  t/tD*   feas cg cg  prec
  0 :            1.03E+02 0.000
  1 :  -2.87E+01 8.16E+01 0.000 0.7884 0.9000 0.9000  13.82  1  1  1.1E+00
  2 :  -3.54E+01 5.20E+01 0.000 0.6379 0.9000 0.9000  12.37  1  1  2.1E-01
  3 :  -4.00E+01 1.74E+01 0.000 0.3338 0.9000 0.9000   2.80  1  1  5.8E-02
  4 :  -4.08E+01 5.80E+00 0.000 0.3337 0.9000 0.9000   1.43  1  1  1.6E-02
  5 :  -4.11E+01 1.46E+00 0.000 0.2516 0.9000 0.9000   1.20  1  1  3.6E-03
```

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  6 :  -4.11E+01 6.85E-01 0.000 0.4695 0.9000 0.9000   1.11  1  1  1.6E-03
  7 :  -4.11E+01 3.84E-01 0.000 0.5603 0.9000 0.9000   1.08  1  1  8.8E-04
  8 :  -4.11E+01 1.79E-01 0.000 0.4652 0.9000 0.9000   1.07  1  1  4.0E-04
  9 :  -4.11E+01 9.22E-02 0.000 0.5165 0.9000 0.9000   1.05  1  1  2.0E-04
 10 :  -4.11E+01 3.74E-02 0.000 0.4059 0.9000 0.9000   1.06  1  1  7.9E-05
 11 :  -4.11E+01 1.62E-02 0.000 0.4342 0.9000 0.9000   1.06  1  1  3.3E-05
 12 :  -4.11E+01 6.15E-03 0.000 0.3782 0.9000 0.9000   1.06  1  1  1.2E-05
 13 :  -4.11E+01 2.54E-03 0.000 0.4130 0.9000 0.9000   1.07  1  1  4.8E-06
 14 :  -4.11E+01 9.74E-04 0.000 0.3839 0.9000 0.9000   1.07  1  1  1.8E-06
 15 :  -4.11E+01 4.16E-04 0.000 0.4266 0.9000 0.9000   1.08  1  1  7.1E-07
 16 :  -4.11E+01 1.56E-04 0.000 0.3746 0.9000 0.9000   1.08  1  1  2.5E-07
 17 :  -4.11E+01 6.55E-05 0.000 0.4204 0.9000 0.9000   1.08  1  1  1.0E-07
 18 :  -4.11E+01 2.04E-05 0.000 0.3110 0.9000 0.9000   1.07  1  1  3.1E-08
 19 :  -4.11E+01 7.16E-06 0.000 0.3514 0.9000 0.9000   1.05  1  1  1.0E-08
 20 :  -4.11E+01 1.44E-06 0.000 0.2016 0.9000 0.9000   1.05  1  1  2.0E-09
 21 :  -4.11E+01 9.25E-08 0.000 0.0641 0.9900 0.9900   1.04  2  2  1.3E-10
 22 :  -4.11E+01 2.83E-09 0.000 0.0305 0.9900 0.9900   1.04  2  2  3.7E-12
 23 :  -4.11E+01 1.67E-10 0.395 0.0590 0.9900 0.9900   1.02 11 11  2.2E-13
Run into numerical problems.

iter seconds digits       c*x               b*y
 23      0.7  11.3 -4.1076422262e+01 -4.1076422263e+01
|Ax-b| =   1.1e-12, [Ay-c]_+ =   1.1E-12, |x|=  8.6e+00, |y|=  6.3e+01

Detailed timing (sec)
   Pre          IPM          Post
0.000E+00    1.560E-01    0.000E+00
Max-norms: ||b||=2.945504e+01, ||c|| = 5.256842e+01,
Cholesky |add|=0, |skip| = 8, ||L.L|| = 65.8996.

ans =

      yalmiptime: 0.0423
      solvertime: 0.1607
            info: 'Numerical problems (SeDuMi-1.3)'
         problem: 4
    solveroutput: [1x1 struct]


ans =

   41.0764

Iteration   5   Total error is: 0.026114
SeDuMi 1.32 by AdvOL, 2005-2008 and Jos F. Sturm, 1998-2003.
Alg = 2: xz-corrector, theta = 0.250, beta = 0.500
eqs m = 25, order n = 803, dim = 827, blocks = 2
nnz(A) = 5066 + 0, nnz(ADA) = 625, nnz(L) = 325
 it :     b*y       gap    delta  rate   t/tP*  t/tD*   feas cg cg  prec
  0 :            1.09E+02 0.000
  1 :  -2.92E+01 8.63E+01 0.000 0.7881 0.9000 0.9000  13.82  1  1  1.1E+00
  2 :  -3.50E+01 5.52E+01 0.000 0.6399 0.9000 0.9000  12.30  1  1  2.2E-01
  3 :  -3.94E+01 1.98E+01 0.000 0.3583 0.9000 0.9000   2.80  1  1  6.8E-02
  4 :  -4.01E+01 7.74E+00 0.000 0.3915 0.9000 0.9000   1.44  1  1  2.2E-02
  5 :  -4.06E+01 1.80E+00 0.000 0.2329 0.9000 0.9000   1.21  1  1  4.5E-03
```

```
  6 :  -4.06E+01 7.89E-01 0.000 0.4372 0.9000 0.9000   1.11  1  1  1.9E-03
  7 :  -4.06E+01 4.28E-01 0.000 0.5431 0.9000 0.9000   1.08  1  1  1.0E-03
  8 :  -4.06E+01 1.79E-01 0.000 0.4190 0.9000 0.9000   1.08  1  1  4.0E-04
  9 :  -4.06E+01 9.11E-02 0.000 0.5079 0.9000 0.9000   1.06  1  1  2.0E-04
 10 :  -4.06E+01 2.78E-02 0.000 0.3054 0.9000 0.9000   1.06  1  1  5.8E-05
 11 :  -4.06E+01 1.04E-02 0.000 0.3731 0.9000 0.9000   1.06  1  1  2.1E-05
 12 :  -4.06E+01 2.10E-03 0.000 0.2018 0.9000 0.9000   1.07  1  1  4.0E-06
 13 :  -4.06E+01 4.26E-04 0.000 0.2033 0.9000 0.9000   1.09  1  1  7.5E-07
 14 :  -4.06E+01 4.13E-05 0.000 0.0970 0.9900 0.9900   1.11  1  1  6.6E-08
 15 :  -4.06E+01 4.09E-06 0.000 0.0991 0.9900 0.9900   1.12  2  2  6.0E-09
 16 :  -4.06E+01 7.64E-07 0.000 0.1866 0.9000 0.9000   1.07  2  2  1.1E-09
 17 :  -4.06E+01 2.98E-08 0.003 0.0390 0.9900 0.9900   1.05  2  2  3.9E-11
 18 :  -4.06E+01 3.00E-09 0.295 0.1007 0.9450 0.9450   1.04 10 10  3.8E-12
 19 :  -4.06E+01 5.64E-10 0.116 0.1881 0.9000 0.9000   1.02 16 15  7.1E-13
Run into numerical problems.

iter seconds digits       c*x               b*y
 19      0.5  10.7 -4.0605157971e+01 -4.0605157972e+01
|Ax-b| =   3.8e-12, [Ay-c]_+ =   3.7E-12, |x|=  9.1e+00, |y|=  6.3e+01

Detailed timing (sec)
   Pre          IPM          Post
0.000E+00    1.250E-01    0.000E+00
Max-norms: ||b||=3.121990e+01, ||c|| = 5.256842e+01,
Cholesky |add|=0, |skip| = 9, ||L.L|| = 72.3193.

ans =

      yalmiptime: 0.0499
      solvertime: 0.1211
            info: 'Numerical problems (SeDuMi-1.3)'
         problem: 4
    solveroutput: [1x1 struct]


ans =

   40.6052

Iteration   6   Total error is: 0.025947
SeDuMi 1.32 by AdvOL, 2005-2008 and Jos F. Sturm, 1998-2003.
Alg = 2: xz-corrector, theta = 0.250, beta = 0.500
eqs m = 25, order n = 803, dim = 827, blocks = 2
nnz(A) = 5102 + 0, nnz(ADA) = 625, nnz(L) = 325
 it :     b*y       gap    delta  rate   t/tP*  t/tD*   feas cg cg  prec
  0 :            1.21E+02 0.000
  1 :  -3.04E+01 9.55E+01 0.000 0.7896 0.9000 0.9000  13.84  1  1  1.1E+00
  2 :  -3.53E+01 6.23E+01 0.000 0.6517 0.9000 0.9000  12.46  1  1  2.2E-01
  3 :  -3.94E+01 2.41E+01 0.000 0.3877 0.9000 0.9000   2.88  1  1  8.1E-02
  4 :  -3.98E+01 1.12E+01 0.000 0.4637 0.9000 0.9000   1.49  1  1  3.2E-02
  5 :  -4.04E+01 3.01E+00 0.000 0.2685 0.9000 0.9000   1.26  1  1  7.3E-03
  6 :  -4.04E+01 1.30E+00 0.000 0.4321 0.9000 0.9000   1.12  1  1  3.0E-03
  7 :  -4.04E+01 6.94E-01 0.000 0.5342 0.9000 0.9000   1.09  1  1  1.6E-03
  8 :  -4.04E+01 3.06E-01 0.000 0.4415 0.9000 0.9000   1.08  1  1  6.6E-04
  9 :  -4.04E+01 1.67E-01 0.000 0.5449 0.9000 0.9000   1.06  1  1  3.5E-04
```

```
 10 :  -4.04E+01 5.57E-02 0.000 0.3338 0.9000 0.9000   1.06  1  1  1.1E-04
 11 :  -4.04E+01 2.35E-02 0.000 0.4225 0.9000 0.9000   1.06  1  1  4.6E-05
 12 :  -4.04E+01 5.47E-03 0.000 0.2323 0.9000 0.9000   1.06  1  1  1.0E-05
 13 :  -4.04E+01 1.40E-03 0.000 0.2567 0.9000 0.9000   1.07  1  1  2.5E-06
 14 :  -4.04E+01 7.61E-04 0.000 0.5421 0.9000 0.9000   1.05  1  1  1.3E-06
 15 :  -4.04E+01 5.89E-04 0.000 0.7744 0.9000 0.9000   0.93  1  1  1.1E-06
 16 :  -4.04E+01 3.95E-04 0.000 0.6698 0.9000 0.9000   0.90  1  1  7.5E-07
 17 :  -4.04E+01 2.99E-04 0.000 0.7572 0.9000 0.9000   0.80  1  1  6.0E-07
 18 :  -4.04E+01 1.72E-04 0.000 0.5746 0.9000 0.9000   0.87  1  1  3.6E-07
 19 :  -4.04E+01 1.48E-04 0.000 0.8602 0.9000 0.9000   0.63  1  1  3.4E-07
 20 :  -4.04E+01 8.40E-05 0.000 0.5686 0.9000 0.9000   0.69  1  1  2.2E-07
 21 :  -4.04E+01 7.06E-05 0.000 0.8410 0.9000 0.9000   0.57  1  1  2.0E-07
 22 :  -4.04E+01 4.18E-05 0.000 0.5924 0.9000 0.9000   0.71  1  1  1.3E-07
 23 :  -4.04E+01 3.40E-05 0.000 0.8128 0.9000 0.9000   0.53  1  1  1.2E-07
 24 :  -4.04E+01 2.08E-05 0.000 0.6105 0.9000 0.9000   0.60  1  1  8.5E-08
 25 :  -4.04E+01 1.71E-05 0.000 0.8212 0.9000 0.9000   0.47  1  1  8.0E-08
 26 :  -4.04E+01 1.12E-05 0.000 0.6576 0.9000 0.9000   0.54  1  1  6.1E-08
 27 :  -4.04E+01 8.53E-06 0.000 0.7610 0.9000 0.9000   0.48  1  1  5.5E-08
 28 :  -4.04E+01 5.52E-06 0.000 0.6470 0.9000 0.9000   0.52  1  1  4.4E-08
 29 :  -4.04E+01 3.64E-06 0.000 0.6587 0.9000 0.9000   0.44  1  1  4.0E-08
 30 :  -4.04E+01 2.35E-06 0.000 0.6454 0.9000 0.9000   0.43  1  1  3.0E-08
 31 :  -4.04E+01 1.55E-06 0.000 0.6596 0.9000 0.9000   0.46  1  1  2.5E-08
 32 :  -4.04E+01 1.24E-06 0.000 0.8003 0.9000 0.9000   0.37  1  1  2.4E-08
 33 :  -4.04E+01 8.63E-07 0.000 0.6966 0.9000 0.9000   0.47  1  1  2.0E-08
 34 :  -4.04E+01 6.77E-07 0.000 0.7841 0.9000 0.9000  -0.06  1  1  2.2E-08
 35 :  -4.04E+01 3.94E-07 0.000 0.5820 0.9000 0.9000   0.45  1  1  1.5E-08
 36 :  -4.04E+01 2.51E-07 0.000 0.6361 0.9000 0.9000   0.31  1  1  1.7E-08
 37 :  -4.04E+01 1.77E-07 0.000 0.7061 0.9000 0.9000   0.13  1  1  1.4E-08
 38 :  -4.04E+01 1.16E-07 0.000 0.6558 0.9000 0.9000   0.11  1  1  1.2E-08
 39 :  -4.04E+01 9.87E-08 0.000 0.8505 0.9000 0.9000  -0.01  1  1  1.3E-08
 40 :  -4.04E+01 4.92E-08 0.000 0.4986 0.9000 0.9000   0.10  1  1  9.5E-09
 41 :  -4.04E+01 3.28E-08 0.000 0.6662 0.9000 0.9000   0.19  2  2  1.0E-08
 42 :  -4.04E+01 2.29E-08 0.000 0.6990 0.9000 0.9000   0.22  1  2  1.1E-08
 43 :  -4.04E+01 1.57E-08 0.000 0.6861 0.9000 0.9000   0.25  1  2  9.2E-09
 44 :  -4.04E+01 8.66E-09 0.000 0.5512 0.9000 0.9000   0.48  1  2  6.3E-09
 45 :  -4.04E+01 5.12E-09 0.000 0.5906 0.9000 0.9000   0.38  2  2  6.4E-09
 46 :  -4.04E+01 3.95E-09 0.000 0.7714 0.9000 0.9000   0.30  1  2  6.0E-09
 47 :  -4.04E+01 3.07E-09 0.000 0.7783 0.9000 0.9000   0.18  2  2  6.4E-09
 48 :  -4.04E+01 1.57E-09 0.000 0.5119 0.9000 0.9000   0.12  1  2  4.5E-09
 49 :  -4.04E+01 1.32E-09 0.000 0.8367 0.9000 0.9000   0.37  2  2  4.4E-09
 50 :  -4.04E+01 1.11E-09 0.000 0.8402 0.9000 0.9000  -0.43  2  2  5.0E-09
 51 :  -4.04E+01 6.05E-10 0.000 0.5471 0.9000 0.9000  -0.10  2  2  4.1E-09
 52 :  -4.04E+01 4.67E-10 0.000 0.7717 0.9000 0.9000   0.52  2  2  3.6E-09
 53 :  -4.04E+01 3.53E-10 0.000 0.7563 0.9000 0.9000  -0.00  2  2  4.0E-09
 54 :  -4.04E+01 2.23E-10 0.000 0.6316 0.9000 0.9000   0.39  2  2  3.0E-09
 55 :  -4.04E+01 1.54E-10 0.000 0.6903 0.9000 0.9000   0.20  2  2  2.8E-09
 56 :  -4.04E+01 9.48E-11 0.000 0.6162 0.9000 0.9000   0.28  2  2  2.1E-09
 57 :  -4.04E+01 6.66E-11 0.000 0.7018 0.9000 0.9000   0.24  2  2  2.0E-09
 58 :  -4.04E+01 3.68E-11 0.000 0.5525 0.9000 0.9000   0.30  2  2  1.3E-09
 59 :  -4.04E+01 3.21E-11 0.000 0.8736 0.9000 0.9000   0.51  2  2  1.1E-09
 60 :  -4.04E+01 2.26E-11 0.000 0.7046 0.9000 0.9000  -0.47  2  2  4.8E-10
 61 :  -4.04E+01 1.02E-11 0.000 0.4521 0.9000 0.9000   0.15  2  2  6.1E-12
 62 :  -4.04E+01 8.53E-12 0.000 0.8335 0.9000 0.9000   0.58  2  2  5.4E-12
 63 :  -4.04E+01 5.82E-12 0.000 0.6820 0.9000 0.9000  -0.30  2  2  5.6E-12
 64 :  -4.04E+01 2.67E-12 0.000 0.4592 0.9000 0.9000   0.11  2  2  3.1E-12
```

```
 65 :  -4.04E+01 2.14E-12 0.000 0.8008 0.9000 0.9000   0.62  2  2  2.6E-12
 66 :  -4.04E+01 1.54E-12 0.000 0.7186 0.9000 0.9000   0.23  2  2  2.3E-12
 67 :  -4.04E+01 1.13E-12 0.000 0.7379 0.9000 0.9000   0.54  2  2  1.8E-12
 68 :  -4.04E+01 8.07E-13 0.000 0.7114 0.9000 0.9000   0.09  2  2  1.8E-12
 69 :  -4.04E+01 4.01E-13 0.000 0.4968 0.9000 0.9000   0.15  2  2  1.0E-12
 70 :  -4.04E+01 3.38E-13 0.000 0.8439 0.9000 0.9000   0.52  2  2  9.4E-13
 71 :  -4.04E+01 2.19E-13 0.000 0.6485 0.9000 0.9000  -0.10  2  2  7.9E-13
 72 :  -4.04E+01 1.66E-13 0.000 0.7567 0.9000 0.9000   0.56  2  2  6.4E-13
 73 :  -4.04E+01 1.19E-13 0.000 0.7141 0.9000 0.9000   0.08  2  2  6.5E-13
 74 :  -4.04E+01 6.29E-14 0.000 0.5303 0.9000 0.9000   0.11  2  2  3.9E-13
 75 :  -4.04E+01 4.85E-14 0.000 0.7719 0.9000 0.9000   0.56  2  2  3.2E-13
 76 :  -4.04E+01 3.37E-14 0.000 0.6947 0.9000 0.9000   0.06  2  2  3.1E-13
 77 :  -4.04E+01 1.66E-14 0.000 0.4908 0.9000 0.9000   0.20  2  3  1.8E-13
 78 :  -4.04E+01 1.16E-14 0.000 0.6994 0.9000 0.9000   0.48  2  3  1.5E-13
 79 :  -4.04E+01 8.85E-15 0.000 0.7648 0.9000 0.9000   0.07  2  2  1.4E-13
 80 :  -4.04E+01 7.46E-15 0.000 0.8424 0.9000 0.9000  -0.35  2  3  1.3E-13
 81 :  -4.04E+01 4.97E-15 0.000 0.6663 0.9000 0.9000  -0.86  2  2  1.4E-13
 82 :  -4.04E+01 3.10E-15 0.000 0.6237 0.9000 0.9000  -0.88  2  2  1.5E-13
 83 :  -4.04E+01 9.35E-16 0.000 0.3017 0.9000 0.9000  -0.93  2  4  1.5E-13
 84 :  -4.04E+01 2.95E-16 0.000 0.3158 0.9000 0.9000  -0.98  3  3  1.5E-13
 85 :  -4.04E+01 1.18E-16 0.000 0.3979 0.9000 0.9000  -1.00  3  3  1.4E-13
 86 :  -4.04E+01 5.02E-17 0.000 0.4274 0.9000 0.9000  -1.00  2  2  1.4E-13
 87 :  -4.04E+01 2.32E-17 0.000 0.4620 0.9000 0.9000  -1.00  3  3  1.4E-13
 88 :  -4.04E+01 1.13E-17 0.000 0.4850 0.9000 0.9000  -1.00  3  3  1.4E-13
 89 :  -4.04E+01 5.74E-18 0.000 0.5100 0.9000 0.9000  -1.00  3  3  1.3E-13
 90 :  -4.04E+01 3.34E-18 0.000 0.5818 0.9000 0.9000  -0.99  3  2  1.3E-13
 91 :  -4.04E+01 1.78E-18 0.000 0.5331 0.9000 0.9000  -0.99  3  3  1.3E-13
 92 :  -4.04E+01 1.01E-18 0.000 0.5668 0.9000 0.9000  -0.98  3  3  1.3E-13
 93 :  -4.04E+01 4.56E-19 0.000 0.4518 0.9000 0.9000  -0.97  3  3  1.3E-13
 94 :  -4.04E+01 2.39E-19 0.000 0.5240 0.9000 0.9000  -0.92  3  3  1.2E-13
 95 :  -4.05E+01 1.07E-19 0.000 0.4472 0.9000 0.9000  -0.87  3  3  1.2E-13
 96 :  -4.06E+01 5.85E-20 0.000 0.5480 0.9000 0.9000  -0.69  2  3  1.0E-13
 97 :  -4.07E+01 2.74E-20 0.000 0.4681 0.9000 0.9000  -0.62  3  3  9.0E-14
 98 :  -4.09E+01 1.40E-20 0.000 0.5108 0.9000 0.9000  -0.19  3  3  5.9E-14
 99 :  -4.12E+01 6.60E-21 0.000 0.4713 0.9000 0.9000  -0.17  2  2  4.5E-14
100 :  -4.16E+01 2.34E-21 0.000 0.3544 0.9000 0.9000   0.48  3  3  1.8E-14
101 :  -4.17E+01 1.31E-21 0.000 0.5602 0.9000 0.9000   0.62  2  3  1.1E-14
102 :  -4.17E+01 1.18E-21 0.000 0.8987 0.9000 0.9000   0.73  3  3  1.0E-14
103 :  -4.17E+01 8.14E-22 0.000 0.6920 0.9000 0.9000  -0.55  3  3  1.1E-14
104 :  -4.17E+01 7.24E-22 0.000 0.8894 0.9000 0.9000  -0.42  3  3  1.1E-14
105 :  -4.19E+01 4.94E-22 0.000 0.6817 0.9000 0.9000   0.51  3  3  7.2E-15
106 :  -4.20E+01 2.51E-22 0.000 0.5073 0.9000 0.9000   0.57  3  3  3.8E-15
107 :  -4.20E+01 1.85E-22 0.000 0.7397 0.9000 0.9000   0.81  3  3  2.9E-15
108 :  -4.20E+01 1.19E-22 0.000 0.6411 0.9000 0.9000   0.89  3  3  1.9E-15
109 :  -4.20E+01 1.02E-22 0.000 0.8583 0.9000 0.9000   0.81  3  3  1.7E-15
Run into numerical problems.

iter seconds digits       c*x                b*y
109      2.3   3.5 -4.2023322819e+01 -4.2038187885e+01
|Ax-b| =   4.0e-13, [Ay-c]_+ =   1.0E-14, |x|=  6.0e+12, |y|=  6.1e+01

Detailed timing (sec)
   Pre          IPM          Post
0.000E+00    4.680E-01    0.000E+00
Max-norms: ||b||=3.460769e+01, ||c|| = 5.256842e+01,
```

```
Cholesky |add|=0, |skip| = 0, ||L.L|| = 459.959.

ans =

      yalmiptime: 0.0506
      solvertime: 0.4644
            info: 'Numerical problems (SeDuMi-1.3)'
         problem: 4
    solveroutput: [1x1 struct]


ans =

   42.0351

Iteration   7   Total error is: 0.026329
SeDuMi 1.32 by AdvOL, 2005-2008 and Jos F. Sturm, 1998-2003.
Alg = 2: xz-corrector, theta = 0.250, beta = 0.500
eqs m = 25, order n = 803, dim = 827, blocks = 2
nnz(A) = 5066 + 0, nnz(ADA) = 625, nnz(L) = 325
 it :     b*y       gap    delta  rate   t/tP*  t/tD*   feas cg cg  prec
  0 :            1.30E+02 0.000
  1 :  -3.19E+01 1.02E+02 0.000 0.7897 0.9000 0.9000  13.84  1  1  1.1E+00
  2 :  -3.61E+01 6.65E+01 0.000 0.6491 0.9000 0.9000  12.43  1  1  2.2E-01
  3 :  -3.97E+01 2.66E+01 0.000 0.4002 0.9000 0.9000   2.85  1  1  8.8E-02
  4 :  -4.02E+01 1.27E+01 0.000 0.4789 0.9000 0.9000   1.50  1  1  3.5E-02
  5 :  -4.08E+01 3.04E+00 0.000 0.2388 0.9000 0.9000   1.27  1  1  7.2E-03
  6 :  -4.09E+01 1.28E+00 0.000 0.4219 0.9000 0.9000   1.12  1  1  2.9E-03
  7 :  -4.09E+01 6.61E-01 0.000 0.5149 0.9000 0.9000   1.09  1  1  1.4E-03
  8 :  -4.09E+01 2.68E-01 0.000 0.4060 0.9000 0.9000   1.08  1  1  5.5E-04
  9 :  -4.09E+01 1.39E-01 0.000 0.5179 0.9000 0.9000   1.07  1  1  2.8E-04
 10 :  -4.09E+01 4.29E-02 0.000 0.3087 0.9000 0.9000   1.06  1  1  8.3E-05
 11 :  -4.09E+01 1.75E-02 0.000 0.4083 0.9000 0.9000   1.06  1  1  3.2E-05
 12 :  -4.09E+01 4.24E-03 0.000 0.2422 0.9000 0.9000   1.07  1  1  7.5E-06
 13 :  -4.09E+01 1.20E-03 0.000 0.2837 0.9000 0.9000   1.08  1  1  2.0E-06
 14 :  -4.09E+01 2.61E-04 0.000 0.2165 0.9000 0.9000   1.09  1  1  4.0E-07
 15 :  -4.09E+01 5.30E-05 0.000 0.2035 0.9000 0.9000   1.11  1  1  7.4E-08
 16 :  -4.09E+01 4.01E-06 0.000 0.0755 0.9900 0.9900   1.10  1  1  5.2E-09
 17 :  -4.09E+01 2.37E-07 0.000 0.0591 0.9900 0.9900   1.09  2  2  2.8E-10
 18 :  -4.09E+01 2.26E-09 0.246 0.0096 0.9990 0.9990   1.05  2  2  2.6E-12
 19 :  -4.09E+01 1.47E-10 0.000 0.0650 0.9900 0.9900   1.04 16 16  1.6E-13
Run into numerical problems.

iter seconds digits       c*x               b*y
 19      0.4  11.3 -4.0895042794e+01 -4.0895042794e+01
|Ax-b| =   9.1e-13, [Ay-c]_+ =   8.2E-13, |x|=  9.0e+00, |y|=  6.3e+01

Detailed timing (sec)
   Pre          IPM          Post
0.000E+00    9.399E-02    0.000E+00
Max-norms: ||b||=3.716562e+01, ||c|| = 5.256842e+01,
Cholesky |add|=0, |skip| = 11, ||L.L|| = 64.6564.

ans =
```

```
      yalmiptime: 0.0524
      solvertime: 0.1036
            info: 'Numerical problems (SeDuMi-1.3)'
         problem: 4
    solveroutput: [1x1 struct]


ans =

   40.8950

Iteration   8   Total error is: 0.026082
The total representation error of the testing signals is: 0.25587
>>
```