# Comparison of ASCALCG and SCALCG conjugate gradient algorithms

**Neculai Andrei**
*Research Institute for Informatics,*
*Center for Advanced Modeling and Optimization,*
*8-10, Averescu Avenue, Bucharest 1, Romania.*
*Academy of Romanian Scientists,*
*54, Splaiul Independentei, Bucharest 5, Romania.*
*E-mail: nandrei@ici.ro*

Figure 1 presents the Dolan-Moré CPU time performance profiles of ASCALCG and SCALCG conjugate gradient algorithms for unconstrained optimization. The ASCALCG – the accelerated BFGS preconditioned conjugate gradient algorithm is an acceleration of the SCALCG algorithm.

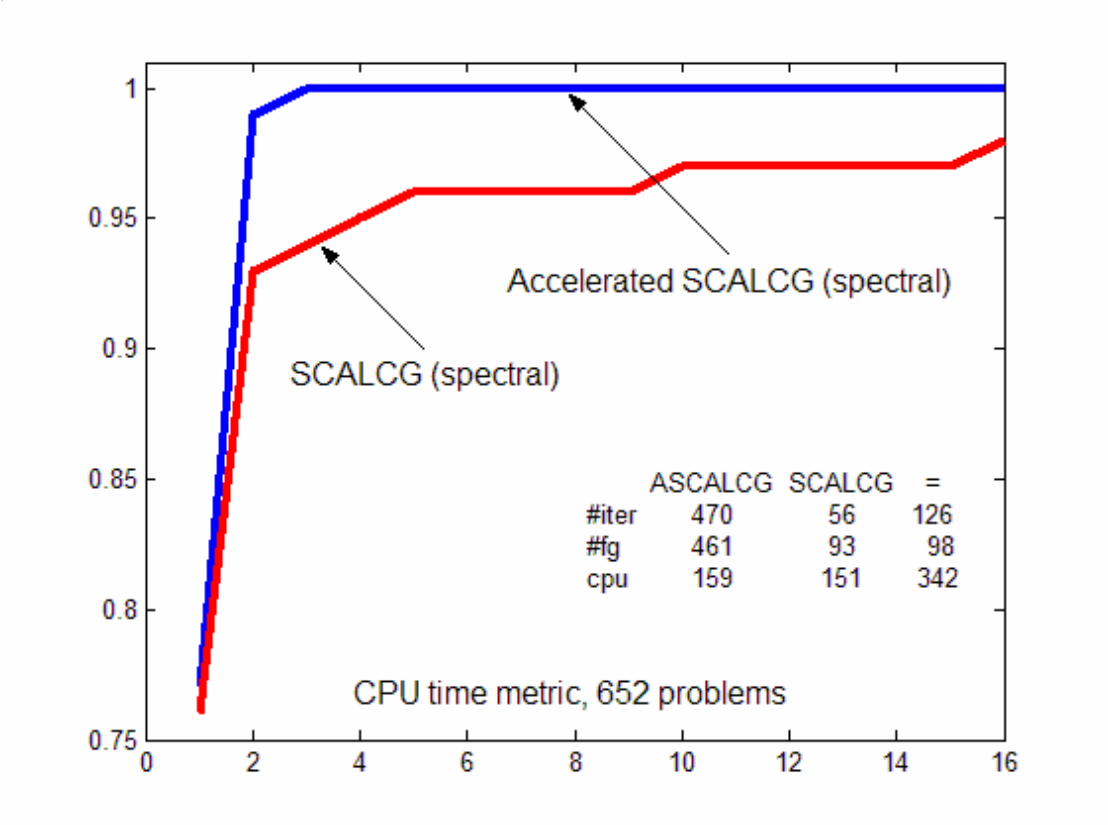


**Fig. 1.** ASCALCG (spectral) versus SCALCG (spectral).

From Figure 1 we see that the acceleration scheme, which in SCALCG is introduced immediately after a line search, is an effective procedure for improving the performances of SCALCG.

```
nexptot= 750    nexp= 652
Total Number of iterations for ascalcg =   123829
Total Number of iterations for scalcg  =   194248

Total Number of function evaluations for ascalcg =   194881
Total Number of function evaluations for scalcg  =  1044619

Total Time (centeseconds)  for ascalcg =    23968
Total Time (centeseconds)  for scalcg  =    56845
```

**March 4, 2008**