

An Interior Point Method with Subspace Techniques

Y.-X. Yuan¹

Abstract: In this talk, we present a new interior point method for nonlinear constrained optimization. Our method requires the step increment to be in a certain lower dimensional subspace. The subspace is updated from iteration to iteration. Thus, at every iteration the subproblem in the new interior point method can be viewed as that in the standard interior point method with an additional subspace constraint. An advantage of the subspace approach is that the subproblem will be a lower dimensional problem even though the original problem is a large-scale problem. Therefore, subspace techniques would provide an efficient way to handle large scale optimization problems. Convergence results of the method are provided.

¹ LSEC, ICMSEC
Academy of Mathematics and Systems Science
Chinese Academy of Sciences
Zhong Guan Cun Donglu 55, Beijing 100080, China
yyx@lsec.cc.ac.cn