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A class of improved affine-scaling interior-point secant filter methods for minimization with equality and box constraints.

Summary: This paper presents a class of affine-scaling interior-point secant methods in association with a filter line search technique for minimization with equality and box constraints. The global convergence properties are analyzed. Under some reasonable conditions, one shows that the proposed algorithms generate a sequence converging 2-step q-superlinearly. The results of numerical experiments are reported to show the effectiveness of the proposed algorithms.

Keywords: affine-scaling interior-point method; minimization; secant algorithm; filter method; line-search
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