A Comparative Study of Three New Conjugate Gradient Methods with Exact Line Search

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Abstract. Conjugate Gradient methods play an important role in solving unconstrained optimization, especially for large scale problems. In this paper, we compared the performance profile of the classical conjugate gradient coefficients FR, PRP with three new β_k . These three new β_k possess global convergence properties using the exact line search. Preliminary numerical results show that the three new β_k are very promising and efficient when compared to CG coefficients FR, PRP.

Keywords: Conjugate gradient method, exact line search, global convergence, large scale, unconstrained optimization.
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