

MODULUS-TYPE INNER OUTER ITERATIVE METHODS FOR NONNEGATIVE CONSTRAINED LEAST SQUARES PROBLEMS

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For the solution of large sparse nonnegative constrained least squares problems (NNLS), a new iterative method is proposed by using CGLS (Conjugate Gradient Least Squares) method for inner iterations and the modulus-based iterative method in the outer iterations for the solution of LCP (Linear Complementarity Problem) resulting from KKT (Karush-Kuhn-Tucker) conditions of NNLS problem. Theoretical convergence analysis including the optimal choice of parameter matrix is presented for the proposed method. Numerical experiments show the efficiency of the method compared to projection-type methods with less iteration steps and CPU time.