Fukuda, Ellen H.; Graña Drummond, L. M.; Masuda, Ariane M.
A conjugate directions-type procedure for quadratic multiobjective optimization. (English)
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Summary: We propose an extension of the real-valued conjugate directions method for unconstrained quadratic multiobjective problems. As in the single-valued counterpart, the procedure requires a set of directions that are simultaneously conjugate with respect to the positive definite matrices of all quadratic objective components. Likewise, the multicriteria version computes the steplength by means of the unconstrained minimization of a single-variable strongly convex function at each iteration. When it is implemented with a weakly-increasing (strongly-increasing) auxiliary function, the scheme produces weak Pareto (Pareto) optima in finitely many iterations.

MSC:
90Cxx Mathematical programming
49-XX Calculus of variations and optimal control; optimization

Keywords:
multiobjective optimization; weak Pareto optimality; Pareto optimality; conjugate directions method

Full Text: DOI

References:
[1] Da Cruz Neto, JX; Da Silva, GJP; Ferreira, OP; Lopes, JO., A subgradient method for multiobjective optimization, Comput Optim Appl, 54, 3, 461-472 (2013) · Zbl 1267.90129

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