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VECTOR OPTIMIZATION PROBLEMS AND SOME OF ITS LOCAL CONVERGENT SOLUTIONS

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ABSTRACT

In this paper, three local convergent algorithms are developed for solving multiobjective geometric programming problems. The first and second algorithms are extensions of T.F. Coleman and A.R. Conn (1982), and T.F. Coleman and A.R. Conn (1984) to solve multiobjective geometric programming problems when all functions are twice continuously differentiable. So, the sequence of solution $\{x^k\}$ converges to the local solution x^* at a 2-step Q-superlinear convergence rate. The third algorithm is an extension of M. Avriel and R.S. Dembo(1978) to solve multiobjective geometric programming problems when the functions are (or are not) twice continuously differentiable. By using the third algorithm, we may (or may not) obtain the best local minimum solution. The properties of the first and second developed algorithms are presented and they are compared to the double

condensed algorithm. Finally, the numerical examples are given to illustrate the algorithms' steps.

KEY WORDS: nonlinear programming, exact penalty methods, successive quadratic programming, Quasi Newton method, geometric programming problems, multiobjective nonlinear programming problems.

1. INTRODUCTION