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Existence theory for the complex linear complementarity problem. (English) Zbl 0215.29701

J. Math. Anal. Appl. 40, 738-762 (1972).

Duality theorems for linear and quadratic programming have recently been extended to complex space by *N. Levinson* [J. Math. Anal. Appl. 14, 44–62 (1966; Zbl 0136.13802)] and *M. A. Hanson* and *B. Mond* [J. Math. Anal. Appl. 20, 507–514 (1967; Zbl 0157.50001)]. In real space, linear and (convex) quadratic programs can be unified by the linear complementarity problem (LCP) for which pivoting algorithms are available. In this paper, a similar result is sought for complex space. The complex LCP is formulated and is shown to give complex linear and quadratic programs as special cases. An existence theory is then developed by means of complex versions of an alternative theorem, the Frank-Wolfe theorem, and the Kuhn-Tucker theorem.

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90C20 Quadratic programming
90C05 Linear programming

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