

**HIGHER ORDER MULTIOBJECTIVE NONDIFFERENTIABLE  
SYMMETRIC DUALITY WITH GENERALIZED  
 $(\phi, \alpha, \rho)$ -UNIVEXITY**

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**Abstract**

A new generalized class of higher order  $(\phi, \alpha, \rho)$ -univex function is introduced with an example and a general Mond-Weir type higher order dual is formulated for a non-differentiable multi-objective programming problem. Under suitable higher order  $(\phi, \alpha, \rho)$ -univex assumption, the duality results like weak, strong and converse duality theorems as well as self duality relations are established. These duality results are then used to formulate Mond-Weir type nondifferentiable higher order minimax mixed integer dual programs and symmetric duality theorem is established.

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Key Words : *Higher order multiobjective symmetric dual, Higher order  $(\phi, \alpha, \rho)$ -univex function, Schwartz inequality, Self duality.*