DUALITY FOR MULTIOBJECTIVE FRACTIONAL VARIATIONAL PROBLEMS WITH GENERALIZED INVEXITY*

Do Sang Kim, Gue Myung Lee and Hun Kuk

ABSTRACT. A multiobjective fractional variational problem (FVP) is considered. By establishing the multiobjective nonfractional variational problem $(NFVP)$ equivalent to (FVP), we formulate the Mond-Weir type dual problem (FVD) of (FVP) and prove some duality theorems for (FVP) under generalized invexity assumptions.

KEYWORDS. Multiobjective fractional variational problems, Mond- Weir dual, efficient solutions, pseudo-invexity, quasi-invexity.

1. Introduction

Duality theorems for fractional minimization problems have been of much interest in the past ([1],[4],[5],[8]). Recently there has been of growing interest in studying duality for multiobjective (fractional) variational and control problems ([2], [7], [10]). Using the parametric equivalence, Bector et al. [1] formulated a dual program for a multiobjective fractional program having continuously differentiable convex functions.

In this paper, a multiobjective fractional variational problem (FVP) is considered. By establishing the multiobjective nonfractional variational problem $(NFVP)$ equivalent to (FVP), we formulate the Mond-Weir type dual problem (FVD) of (FVP), and prove weak, strong and converse duality theorems for (FVP) under generalized invexity assumptions.

2. Notations and Preliminaries

The following conventions for vectors in R^n will be used: