

Preface

Special Issues on Vector Variational Inequalities

Two special issues are edited on the topic of vector variational inequalities (in short, VVI). These issues are devoted to Professor Franco Giannessi in honour of his 68th birthday and pioneer work on VVI. It is a great honor and pleasure to devote these issues to our long-term mentor and friend, Franco Giannessi.

The VVI problem was introduced by Professor Franco Giannessi in 1978 Erice Conference, see his paper ‘Theorems of the Alternative, Quadratic Programs, and Complementarity Problems’, *Variational Inequalities and Complementarity Problems*, edited by R.W. Cottle, F. Giannessi, and J.L. Lions, Wiley, pp. 151–186, 1980. VVI is a new mathematical model for equilibria, which do not imply the minimum (or maximum) of any functional. This problem has received extensive attention in the last two decades and led to a new field, known as ‘VVI’.

The research of VVI has been further advanced by the following book edited by Franco Giannessi: *Vector Variational Inequalities and Vector Equilibria*, Kluwer Academic Publishers 2000, with 532 pages. This book also includes a VVI reference list with 67 papers. This special issue includes a updated list with 166 papers.

Recently Franco has communicated to us that, during the Conference on mathematical models in aerospace (Erice July 1–10, 2003), he had been present to a discussion on the importance of vector approach in absence of symmetry principle.

These two special issues include the recent development of VVI. The summaries of the 7 papers in this issue are listed below:

The paper by Ansari, Schaible and Yao explored the existence of a solution of a vector quasi-VI problem over product sets and a system of vector quasi-VI problems. The newly introduced relative pseudomonotonicity and relative maximal pseudomonotonicity play a major role in their results.

In the paper by Chen, Yang and Yu, a new nonlinear scalarization function was introduced. Several important properties like subadditiveness and continuity of this nonlinear scalarization function were established. Applications to existence of solutions for generalized quasi-vector equilibrium problems were given.

Two new notions of semicontinuities for mappings between topological spaces were introduced in the paper by Chiang. Some important basic properties of these two type semicontinuous mappings were explored

and an application to the mixed vector variational-like inequality was considered.

The paper by Crepsi, Ginchev and Rocca studied the existence of a solution of a Minty VI which is defined in terms of a Dini-directional derivative.

Some existence results of a solution of a VVI were given in Huang and Fang's paper where the usual monotonicity in the problem is replaced by the complete continuity.

Some new and pertinent connections between the strong optimization and approximate Pareto type efficiency by employing the notion of full nuclear cones were presented in the paper by Isac and Postolica.

A relationship between strong and weak solutions of a set-valued VVI and a solution of a set-valued VI was established by Konnov's paper.

Professor Panos Pardalos, the Editor-in-Chief of Journal of Global Optimization, suggests the idea to devote the two special issues to Professor Franco Giannessi. We are grateful to him for his encouragement to edit the special issues and his kind assistance during the preparation and publication of the issues. We are thankful to all the reviewers and the authors of their issue for their contributions.

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