

## Preface

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In January, 2014, the 2nd International Conference on Variational Analysis and Optimization was held in Santiago, Chile, to honor professor Lionel Thibault on the occasion of an *Honoris Causa* doctorate he received from the University of Chile.

This special issue entitled “Variational and Nonsmooth Analysis for Optimization Theory and Applications” is another token of appreciation for Lionel Thibault’s professional achievements.

The two volumes in the issue were edited by Aris Daniilidis, Abderrahim Hantoute, Boris Mordukhovich, Claudia Sagastizábal and myself. Conference participants and colleagues submitted excellent works representing the wide spectrum of research covered by the honoree.

Lionel is a fine mathematician with an interesting background. He was born in Haiti and completed his undergraduate studies at the University of Montpellier (France) where he received the award for the best undergraduate student in the Faculty of Science. He completed his doctorate thesis at the same university under the direction of Professor Charles Castaing. In 1992 he became a Professor at the University of Montpellier, a position which he still holds today.

Concerning Lionel’s contribution to Mathematics, Professor R. Tyrrell Rockafellar wrote, in his letter of support for the Doctor Honoris Causa degree awarded to Lionel Thibault by the University of Chile: “*Prof. Lionel Thibault, of Montpellier, France, is one of the foremost contributors to the mathematical field of variational analysis. He has been engaged in this for almost 40 years and has especially been responsible for major developments in infinite-dimensional theory, jumping beyond the limitations of finite-dimensional theory...Thibault has been extremely helpful to the field in his capacity as an Editor of the Journal of Convex Analysis, and more broadly as an expert who is closely familiar with just about everything in the subject and able to say exactly who did what, and when.*”

Another important aspect of his contribution has been the significant role he has played in the development of research groups in Mathematics, in France (including the Caribbean) and other countries such as Chile, Algeria, Nigeria, Senegal, Haiti and Morocco, where he continues working with postdoctoral fellows and teaching graduate and undergraduate students. He has advised 20 PhD students, out of which 15

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currently have positions as University professors (five in France and ten in other countries, including three in Chile).

For the last 15 years Professor Thibault has served as President of the Association of French and Chilean Applied Mathematicians. His significant influence in the development of the fields of Optimization and Variational Analysis in Chile is another reflection of his generosity, talent and enthusiasm. For me and for many of his colleagues, Lionel is the best model of an honorable mathematician and an extremely devoted researcher.

Following is a summary of the contents of this special issue.

In the first volume:

- D. Zagrodny studies metric projection mappings in Hilbert spaces.
- G. Beer and J. Vanderwerff consider structural properties of real linear spaces equipped with extended norms.
- S. Simons explores relations between abstract subdifferentials, maximal monotonicity and the Brøndsted-Rockafellar property.
- The Brøndsted-Rockafellar property is again approached, this time from a perspective of additive enlargements of maximal monotone operators, by R. Burachik, J. E. Martínez-Legaz, M. Rezaie and M. Théra.
- For quasiconvex problems, D. Aussel and M. Pistek define limiting normal operator maps, calculus rules and optimality conditions.
- Generalized equations whose multivalued parts are modeled via regular normals to nonconvex conic constraints are considered by B. Mordukhovich, J. Outrata and H. Ramírez.
- A. Kruger presents a classification scheme for various general Hölder metric subregularity criteria of set-valued mappings.
- Stability properties of linear optimization problems subject to perturbations on the left hand side coefficients are studied by A. Daniilidis, M. Á. Goberna, M. A. López-Cerdá and R. Lucchetti.

In the second volume:

- S. Flåm identifies sufficient conditions for non-coordinated, non-assisted economic agents to reach by themselves a competitive equilibrium.
- Z. Aouani and B. Cornet extend to the constrained case the notion of absence of redundant assets, when agents face portfolio constraints.
- Pareto optimal allocations for economies with consumers having possibly non-complete and non-transitive preferences are analyzed by J-M. Bonnisseau and L. Rakotonindrainy.
- J.-F. Crouzet and M.-O. Czarnecki examine the behavior of the volume of a tube around a given compact subset in finite dimension.
- P. Apkarian, D. Noll and L. Ravanbod propose a bundle trust-region algorithm to minimize locally Lipschitz functions which are potentially nonsmooth and nonconvex.
- P. Combettes and D. Dung compute Kolmogorov  $n$ -widths for multivariate periodic functions induced by non-degenerate differential operators.
- A. Samir, A. Hantoute and B. K. Le determine the well-posedness and analyze the stability of set-valued Lur'e dynamical systems in infinite-dimensional Hilbert spaces.

- F. Silva establishes second order optimality conditions for semilinear parabolic control problems with pointwise bound constraints on the control and finitely many integral constraints on the final state.

I would like to thank the authors, editors, and reviewers for their contributions to this special issue, as well as the editorial office of Set Valued and Variational Analysis for having made this special issue possible.