Preface

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Received: 26 July 2017 / Accepted: 26 July 2017 / Published online: 25 August 2017
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The 7th International Seminar on Optimization and Variational Analysis (OVA7) was held in the University of Alicante, in Spain, from June 1st to June 3rd, 2016. It was the seventh edition of a series of seminars organized, since 2007, by the Optimization and Stability research groups of Alicante and Miguel Hernández (Elche) Universities. The workshop consisted of three plenary talks, delivered by Hedy Attouch, Heinz Bauschke, and Jon Borwein, and 24 invited talks given by prestigious specialists in optimization, variational analysis, and related topics like vector optimization, generalized differentiation, and functional analysis. There was a special session devoted to applications, funded by the Gaspard Monge Program for Optimization and Operations Research (PGMO).

OVA7 had special significance because it celebrated the 70th birthday of Prof. Michel Théra (Université de Limoges, France). This fact provided an additional motivation for the organizers of the workshop and for the Scientific Committee, which was composed by J. Borwein, R. Correa, I. Ekeland, M. Goberna, F. Giannessi, J.-B. Hiriart-Urruty, M.A. López-Cerdá, J. Parra, and C. Sagastizábal.

As a token of appreciation for Michel Théra's career and long-lasting service to the journal, Set Valued and Variational Analysis organized a special volume, entitled *Advances in Monotone Operators Theory and Optimization*, and edited by R. Henrion, M.A. López-Cerdá, and C. Sagastizábal from the Editorial Board, together with J. Borwein and F. Aragón-Artacho as Guest Editors.

In Memoriam of Jonathan M. Borwein

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Prof. Michel Théra got his undergraduate degree from the University of Limoges, where he met his first master, Prof. Raymond Couty, who transmitted to him the taste of and the passion for Nonlinear Analysis. Michel got his PhD at the University of Pau, supervised by Prof. Jean-Paul Penot and received his Docteur des Sciences degree from the University of Paris Sorbonne. He taught at the University of Limoges since 1968, was appointed full professor in 1990 and became professor emeritus there in 2012. He held positions as visiting professor and researcher in California, Spain, Italy and Chile and is currently appointed Adjunct Research Professor at the Federation University in Australia.

Michel was the founder of a research group in optimization at Limoges that he led until he became Vice-President of the University of Limoges. He served first as Vice-President and later on, was elected President of the French Society for Industrial and Applied Mathematics (SMAI). He has also served in the International Committee for Developing Countries from the European Mathematical Society and is still associated to this committee. Michel is member of the editorial board of numerous international journals in optimization and applied analysis. He is also the leader or collaborator of several national and international research joint projects with Chile (NATO), Vietnam, Bulgaria, and Australia (ARC).

The research output of Prof. Michel Théra grew to well over a hundred papers, published in the major journals of the area. A distinctive feature of Michel's career is his vast network of co-authors, that includes well-known mathematicians as well as young students. A proof of Michel's active support to the research of young students, is the fact that he supervised 9 PhD and 11 habilitation theses, in several branches of applied analysis.

After a long period of research dedicated to monotone operator theory, including many collaborations with Hedy Attouch, Juan-Enrique Martínez Legaz, Julian Revalski, Teemu Pennanen and, more recently, with Regina Burachik. Prof. Théra worked in variational inequalities, while he was supervising the research of Daniel Goeleven, Samir Adly, and Emil Ernst. Michel focused afterwards on Variational Analysis and its applications to implicit multifunction theorems, metric regularity, and the theory of error bounds. His main collaborators in this area have been his PhD student Huynh Van Ngai, Alexander Kruger, Marco Antonio López-Cerdá, and the group in Miguel Hernández University of Elche, led by Lola Cánovas and Juan Parra.

In 2007, the University of Limoges celebrated Michel's 60th birthday and a special issue of the Pacific Journal of Optimization was dedicated to this event. In 2016, in addition to OVA7 in Alicante, the University of Quy Nhon (Vietnam) celebrated Michel's 70th birthday and organized in his honor the Conference entitled "New Trends in Optimization and Variational Analysis for Applications".

This special volume is organized in two issues, with contributions written by prestigious specialists, some of them collaborators of Prof. Théra, dealing with the different scientific fields covered in the OVA 7 program.

In this first issue there are nine papers, whose contents are briefly described below:

J.M. Borwein shares his views about the role of examples and counter-examples and of generalizations in mathematical research by commenting on several illustrating instances in analysis and optimization.

The Douglas-Rachford algorithm applied to affine maximally monotone relations is studied by H. H. Bauschke, B. Lukens and W. M. Moursi.

J.E. Martínez-Legaz and M. Todorov introduce and study the class of weakly Motzkin predecomposable sets, which are those sets in the Euclidean space that can be expressed as the Minkowski sum of a bounded convex set and a convex cone, none of them being necessarily closed.

The paper by G. E. Ivanov and L. Thibault studies general minimal time problems with a convex dynamics and a lower semicontinuous extended real-valued target function defined on a Banach space.

S. Adly, H. Van Ngai and V. V. Nguyen deal with stability of the metric regularity under set-valued perturbation. By means of certain measure of closeness between multifunctions, these authors establish some stability results on the semi-local/local metric regularity and apply them to study the convergence of iterative schemes of Newton-type methods for solving generalized equations.

R.I. Bot and E.R. Csetnek investigate the asymptotic behavior of the trajectories of the nonautonomous Levenberg-Marquardt dynamical systems associated to variational inequalities.

The paper by R. Lucchetti and M. Milassi deals with the approximation of quasiconvex functions with strictly quasiconvex functions in a Banach space.

G. Beer studies the oscillation over a given set of a function defined between metric spaces. When the set collapses to a point the author retrieves the classical notion of oscillation of a function at a point.

M.A. Goberna, A.B. Ridolfi and V.N. Vera de Serio consider the duality gap function measuring the difference between the optimal values of the primal problem and of the dual problem in linear programming and in linear semi-infinite programming. They analyze its behavior when the data defining these problems may be perturbed, considering seven different scenarios.

This preface would not be complete without mentioning the terrible loss of Prof. Jonathan Borwein, one of the guest editors of this special volume. Shortly after OVA7, while the special issue was being prepared, we received the sad news that caused a great commotion in the international mathematical community.

We take the opportunity to express our deep feeling of admiration for Jon's immense contribution to the progress of mathematics. He played a fundamental role as a catalyst for a myriad of projects and innovative initiatives. Above all, his memory will continue forever, as for so many among us, including our honoree, Michel Théra, Jon was the best teacher and the best friend.

F. Aragón-Artacho, R. Henrion, M.A. López-Cerdá, C. Sagastizábal, and J. Borwein (*in memoriam*)