

# Well-Posed Optimization Problems and Related Topics

## Introduction to the Special Issue

This issue contains papers presented at, or related to, the 12-th workshop on well-posedness of optimization problems and related topics, held in Levico Terme (Italy) on September 2009. The workshop was entirely supported by the Italian Istituto Nazionale di Alta Matematica.

Previous workshops on the same topics were organized every two years since the first one in Milan (1987), then in Sofia (1989), Santa Margherita Ligure (1991), Sozopol (1993 and 1997), Luminy (1995 and 2003), Gargnano (1999), Warsaw (2001), Borovets (2005) and Alicante (2007).

Well-posedness of scalar and vector optimization problems is a fundamental issue, being related in a deep way to their mathematical structure and the performance of numerical methods. Starting with the work of Tykhonov, and the adaptation of the ideas of Hadamard (originally developed for boundary value problems) to the optimization framework, the field has evolved in a wide setting relating to variational analysis, stability and sensitivity of parametric problems, well-posedness in stochastic optimization, game theory and vector optimization (to name a few). Connections with topological, functional analytic and variational methods represent a substantial part of the subject. More recently, the analysis of the performance of numerical algorithms has been related on well-posedness of the corresponding problems.

The papers of this issue reflect the various ways well-posedness and stability enter in the optimization field, including mathematical programming, metric regularity, equilibrium models, regularization issues, error estimates, best approximation problems and variational inequalities.

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