Foreword

A few months ago, we figured out to ask some friends and collaborators of Umberto Mosco to offer him a scientific paper in the occasion of his seventieth birthday. Our proposal to collect the contributions in a dedicated issue of Rendiconti di Matematica has been welcomed by the Director Prof. Alessandro Silva and the Editorial Committee of the journal. We wish to profoundly thank them and the contributing authors. On their behalf we are also happy to present our best sincere wishes to Umberto for a long and fruitful continuation of his admirable scientific career.

Umberto Mosco, born in Cosenza on February 2, 1938, takes his *laurea* degrees *cum laude* in Mathematics at the Università di Roma under the advice of Prof. Gaetano Fichera. The topic of his dissertation, concerning notions of convergence for self-adjoint operators implying the convergence of the eigenvalues, re-blossomed in the later scientific work of Umberto in various forms, including the variational convergence which is now generally known as Mosco Convergence.

His activity started in 1955 as *discepolo ricercatore* at the Istituto Nazionale di Alta Matematica, which was at the time chaired by Prof. Francesco Severi. After a period in which he mostly dedicated to studying Theoretical Physics, Umberto returned his attention on Mathematical Analysis. In 1967 he obtained the *libera docenza* in Metodi Matematici per la Fisica. In 1971, he won a competition for Professore di Analisi Superiore at the Università di Bologna; in the same year he is appointed as professor at the Università di Roma-La Sapienza, first in the Faculty of Statistics and later in the Faculty of Sciences.

At the time Umberto was strongly involved in the study of variational and quasi-variational inequalities, both from the point of view of regularity of solutions and their numerical analysis and the applications of the theory. It is also during this period that he begins to develop a strong interest for a research theme that he will continue to cultivate in its different aspects up the present days: the study of differential problems in irregular media.

In 2004, he retired from the Università di Roma to move to the USA in order to accept the Harold J. Gay Professorship at the Department of Mathematical Sciences at Worcester Polytechnical Institute. He is presently carrying on there his scientific and research training activity with more intellectual vivacity, enthusiasm and success than ever. Over time, his mathematical interests directed themselves toward the study of fractals. His remarkable contributions on this topic demonstrate how fractals can be thought as irregular boundaries in transmission or boundary value problems or as sets where differential problems can be posed in a generalized sense.

The scientific career of Umberto Mosco comprises several prestigious acknowledgements. Up to now, let us mention the Bonavera Prize from the Accademia delle Scienze di Torino in 1969, the Feltrinelli Prize awarded in 1996 from the Accademia dei Lincei, the Alexander von Humboldt Foundation Award in 1998, the Gold Medal for Mathematics from the Accademia Nazionale delle Scienze detta dei XL in 2002. Since 2004 he is member of the Accademia Nazionale delle Scienze detta dei XL. In the same year he has been invited by the Royal Swedish Academy to deliver the Marconi Lecture.

His mathematical taste, solidly anchored to the best italian tradition in Partial Differential Equations and in the Calculus of Variations and at the same time open to the to algorithmic and computational aspects and to the more up-to-date applications to Physics and Economy, widely and deeply influenced indeed a large number of mathematicians. The brilliant scientific and human personality of Umberto has been a fundamental reference point for generations of analysts. So much that is impossible to mention here the names of all of those who greatly benefited of his prominent teaching and research qualities.

<div style="text-align: right">

Marco Biroli
Italo Capuzzo Dolcetta
Nicoletta Tchou

</div>