

PREFACE

Industrial mathematics is evolving into an important branch of mathematics. The scientific community is becoming increasingly aware of this new trend and it is actively engaged in bridging the gap between the highly specialized mathematical and computational research and the emerging demands of innovation coming from industry.

The present contributed volume intends to provide an overview of the most recent research activities currently being pursued in Italy in this direction and to illustrate possible ways of using results coming from pure and applied mathematical research in the resolution of problems coming outside mathematics. The field of applied and industrial mathematics in its broadest sense is covered, and as such, the mathematical content ranges from rigorous and formal analytical results to analysis of computational techniques, from modeling to engineering oriented computational simulations. We hope that, as a whole, the volume may provide to researchers working in industry a general view of existing skills in Academia, and to academics a selection of applications of mathematics to real world problems, to take inspiration from for new theoretical developments, and to discover new applications of existing mathematical ideas.

This book represents a constructive outcome of the activities of the Italian Society for Applied and Industrial Mathematics (SIMAI) to promote advances in applied and industrial mathematics. In particular, these activities include the 8th SIMAI Conference organized in 2006 which, by bringing together research and practitioners in mathematical modeling and numerical solutions, represents a key occasion to promote and stimulate research in applied mathematics and to foster interactions with industry. The 53 contributions collected here have been selected from a larger number of submitted papers by the Scientific Committee of SIMAI consisting

of Ubaldo Barberis, Franco Brezzi, Enrico De Bernardis, Mario Primicerio, Fausto Saleri, Alessandro Speranza, Vanda Valente and the Editors of this book. We wish to thank all of them as well as the referees that have been involved in the selection procedure.

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The Editors

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