

PREFACE

This volume contains a collection of papers presented at the conference “Nonsmooth Problems with Applications in Mechanics”, hosted by the Mathematical Research and Conference Center of the Institute of Mathematics of the Polish Academy of Sciences in Będlewo, Poland, on June 17–22, 2023. This conference was a continuation of the successful conferences “Emerging Trends in Applied Mathematics and Mechanics (ETAMM)” held in 2016 in Perpignan, France, and in 2018 in Kraków, Poland. The event ETAMM2020 planned to take place in Ostrava, Czechia, was cancelled due to the covid pandemic.

Mathematical models of nonsmooth problems arise in a huge number of applications. Some simple examples are the contact problems which occur in the automotive industry and metal forming as well as in the various manufacturing settings involving electrical circuits and smart materials, including piezoelectric materials. The study of nonsmooth problems requires advanced results in modelling, analysis, control and numerical approximation. The resulting models are expressed in terms of challenging mathematical problems. The aim of this conference was to present the state of the art in the mathematical treatment of nonsmooth problems and their applications. The presentations have covered a wide range of topics, including fixed point problems, variational and hemivariational inequalities, abstract inclusions and sweeping processes, nonlinear boundary value problems, optimization and optimal control, numerical analysis, and applications in solid, fluid and contact mechanics.

As coordinators of this event we wish to thank the members of the Scientific and Organizing Committee who made the conference a real success. We express our deep appreciation to the authors for their contributions. We extend our thanks to the reviewers for their helpful comments and remarks. Further, we appreciate the support received from the European Union’s Horizon 2020 Research and Innovation Programme under the Marie Skłodowska-Curie grant agreement No. 823731 CONMECH, the National Science Centre of Poland under Project No. 2021/41/B/ST1/01636, and the Strategic Programme Excellence Initiative at Jagiellonian University in Kraków. Finally, we thank the Banach Center and the Institute of Mathematics Polish Academy of Sciences for organizing this conference and publishing its proceedings.

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