

# Preface

This volume contains a collection of articles written by the participants, and their colleagues and collaborators, of the second International workshop *Geometry and Symbolic Computation* held at the University of Haifa (Israel) between May 15 and 18, 2013. The workshop was preceded by a day of excursions: the participants could choose between sightseeing at Jerusalem, Galilea Sp., The Dead Sea Sp., etc. The first International Workshop in this series, named “Reconstruction of Geometrical Objects Using Symbolic Computations”, was on September 2008, at the University of Haifa.

Both workshops were sponsored by the Caesarea Edmond Benjamin de Rothschild Foundation Institute for Interdisciplinary Applications of Computer Science (CRI), the Center for Computational Mathematics and Scientific Computation (CCMSC), the Faculty of Natural Sciences and the Department of Mathematics at the University of Haifa.

Materials related to these workshops can be found on the homepage of V. Rovenski <http://math.haifa.ac.il/ROVENSKI/rovenski.html> and on the official cite of CRI <http://www.cri.haifa.ac.il/index.php/crievents/>.

The participants numbered approximately 20 and came from France, Greece, Kazakhstan, Poland, Russia, Ukraine and, of course, Israel. The scientific committee comprised of the editors of this volume and V. Golubyatnikov (Novosibirsk). The list of local organizers includes one of the editors (V. Rovenski); Workshop Secretary Dr. Irina Albinsky; Workshop Coordinator Ms. Danielle Friedlander; and Technical Consultant Mr. Hananel Hazan.

The papers contained in this volume are closely related to the lectures delivered at the conference, which was designed to cover different aspects of geometry together with some applications.

Three of the articles collected in the first part (Geometry) of the volume are related to geometric flows for submanifolds and foliated Riemannian manifolds analogous, to some extent, to the classical mean curvature and Ricci flows. The study of geometric flows for foliations was introduced by the editors in *Topics in Extrinsic Geometry of Codimension-One Foliations*, Springer Briefs in Mathematics, Springer-Verlag, 2011. We are happy to see some progress in this field. Another

article related to geometric flows is devoted to the study of the classical Ricci flow on some particular homogeneous spaces. The other articles in this part reflect the current interest of the authors and are devoted to laminations, integral formulae, geometry of vector fields on Lie groups, and a general notion of osculation. Among them, one can find new results concerning generic properties of minimal foliations and laminations and a survey of integral formulae showing some relations between such formulae and geometric flows.

The articles collected in the second part (Applications) concern some particular problems of the theory of dynamical systems: mathematical models of liquid flows, study of cycles for nonlinear dynamical systems and relation with entropy of some quantities which appeared in a very special inequality (called *Remez inequality*) for  $C^k$ -functions.

We express our gratitude to all the participants, the contributors to the volume, the sponsors, and everyone who helped us while we were organizing the conference and preparing the volume for publication. In particular, we would like to mention Dr. Irina Albinsky who organized all the excursions, the registration of participants, and the opening procedure.

Haifa, Israel  
Łódź, Poland

Vladimir Rovenski  
Paweł Walczak

Geometry and its Applications

Rovenski, V.; Walczak, P. (Eds.)

2014, X, 243 p. 19 illus., Hardcover

ISBN: 978-3-319-04674-7