Preface

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The journal with its 130 years' long tradition renews its editorial board every four years. This year the new board started to work, and we are committed to maintain the journal's high quality and purposes. I wish to thank Guido Schneider for having directed the journal over the past four years, and I believe everyone appreciates the outcome. The journal produced in the more recent part of its long tradition articles in a broad spectrum of mathematics, in a very accessible style, and still at best scientific quality.

The journal publishes survey articles, mostly of recent advances, but also of hidden treasures, which we believe to be of interest to a broad mathematical community. The journal also informs about a selection of recently published books in reviews of a few pages. Finally, historical articles or obituaries appear in the journal occasionally.

We, the new editorial board, will continue to actively contact colleagues in order to ask for articles meeting these purposes. We will also carefully examine submissions of articles which fall into the above categories.

In this volume you will find two survey articles.

The first one by Angeliki Koutsoukou-Argyaki describes advances in applied logic, developing automatized proof programs on the example of ISABELLE. The article contains at the same time a description of what the system can do, including some information about the methods employed, what kind of practical problems and difficulties arise, but also gives an idea what kind of questions are still out of reach at the moment.

In the second survey article Manuel Amann studies recent results on long standing conjectures in differential geometry which relate curvature with topological invariants like Betty numbers, Euler characteristics, equivariant cohomology and K-theory.

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A book review by Helmut Abels on Alain Mirainville's monograph "The Cahn-Hilliard Equation: Recent Advances and Applications" finishes this volume.

We are looking forward to this new task, and we hope you enjoy reading this volume and the Jahresbericht over the next four years.

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