



Preface

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The field \mathbb{F}_1 with one element is a suggestive name for an object that should behave similarly to a finite field with a single element, if such a field would exist. The possibility of studying the mathematics of \mathbb{F}_1 was suggested in 1956 by Jacques Tits. Oliver Lorscheid gives an introduction to \mathbb{F}_1 -geometry for a general mathematical audience. He explains the initial motivations for \mathbb{F}_1 -geometry in detail, provides an overview of the different approaches to \mathbb{F}_1 and describes the main achievements of the field.

Since the discovery of solitary waves by S. Russell in 1834 the so called water wave problem attracted a lot of scientific interest. It is used in the description of tsunamis and freak waves. A speciality of the water wave problem is the fact that there are many different coordinate systems describing the same physical problem. The fully nonlinear and the degenerated hyperbolic character of the underlying PDEs make this problem mathematically very interesting. The last years saw a big number of mathematical publications about the time-dependent water wave problem. Wolf-Patrick Düll gives an overview about recent local and global existence results and about new results concerning the qualitative behavior of solutions.

Finally, Annette Huber reviews the book “Algebraic Spaces and Stacks” by M. Olsson and Simeon Ball the book “Polynomial Methods in Combinatorics” by Larry Guth.

We hope that you enjoy reading this issue.

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