

Preface

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The theme of this issue are different aspects of geometry, namely geometric analysis, geometric probability, and algebraic geometry.

The shortest path between two points on a manifold or the surface of minimal area which has a closed curve as boundary are objects of differential geometry whose existence can be obtained with methods of the calculus of variations. In his survey article entitled “Variational Methods in Geometry” Michael Struwe discusses geodesics and minimal surfaces. He explains with a number of classical and recent examples how subtle refinements of standard variational tools allowed for surprising improvements of existing results.

Five years ago Michael Struwe received the Cantor medal from the Deutsche Mathematiker-Vereinigung for outstanding achievements in the field of geometric analysis, calculus of variations and nonlinear partial differential equations.

The second survey article, entitled “Geometric Probability on the Sphere” is written by Hiroshi Maehara and Horst Martini. Geometric probability relates probability theory to geometric properties or quantities such as length, area, volume, shape and configurations of geometric objects. A famous example is Buffon’s needle problem, which goes back to the 18th century and asks to find the probability that a needle of fixed length will land on a line of a floor with equally spaced parallel lines with a fixed distance apart. Hiroshi Maehara and Horst Martini give an elementary introduction to similar questions on the sphere.

Finally, Urs Hartl reviews the book “Rigid Geometry of Curves and Their Jacobians” by Werner Lütkebohmert.

We hope that you enjoy reading this issue.

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