Table of Contents

Cancellation Patterns in Automatic Geometric Theorem Proving Susanne Apel and Jürgen Richter-Gebert	1
Exploring the Foundations of Discrete Analytical Geometry in Isabelle/HOL	34
A Formalization of Grassmann-Cayley Algebra in CoQ and Its Application to Theorem Proving in Projective Geometry	51
Automatic Calculation of Plane Loci Using Gröbner Bases and Integration into a Dynamic Geometry System	68
Proof Documents for Automated Origami Theorem Proving Fadoua Ghourabi, Tetsuo Ida, and Asem Kasem	78
The Midpoint Locus of a Triangle in a Corner	98
Some Lemmas to Hopefully Enable Search Methods to Find Short and Human Readable Proofs for Incidence Theorems of Projective Geometry	118
What Is a Line?	132
On One Method of Proving Inequalities in Automated Way	152
Thousands of Geometric Problems for Geometric Theorem Provers (TGTP)	169
An Investigation of Hilbert's Implicit Reasoning through Proof Discovery in Idle-Time Phil Scott and Jacques Fleuriot	182



X Table of Contents

A Coherent Logic Based Geometry Theorem Prover Capable of Producing Formal and Readable Proofs	201
Automated Generation of Readable Proofs for Constructive Geometry Statements with the Mass Point Method	221
Author Index	259