
Contents

Part I Survey of the European project GAIA II

1 The GAIA Project on Intersection and Implicitization

T. Dokken 5

Part II Some special algebraic surfaces

2 Some Covariants Related to Steiner Surfaces

F. Aries, E. Briand, C. Bruchou 31

3 Real Line Arrangements and Surfaces with Many Real Nodes

S. Breske, O. Labs, D. van Straten 47

4 Monoid Hypersurfaces

P. H. Johansen, M. Løberg, R. Piene 55

5 Canal Surfaces Defined by Quadratic Families of Spheres

R. Krasauskas, S. Zube 79

6 General Classification of (1,2) Parametric Surfaces in \mathbb{P}^3

T.-H. Lê, A. Galligo 93

Part III Algorithms for geometric computing

7 Curve Parametrization over Optimal Field Extensions Exploiting the Newton Polygon

T. Beck, J. Schicho 119

8 Ridges and Umbilics of Polynomial Parametric Surfaces

F. Cazals, J.-C. Faugère, M. Pouget, F. Rouillier 141

VIII Contents

9 Intersecting Biquadratic Bézier Surface Patches	
<i>S. Chau, M. Oberneder, A. Galligo, B. Jüttler</i>	161
10 Cube Decompositions by Eigenvectors of Quadratic Multivariate Splines	
<i>I. Ivriissimtzis, H.-P. Seidel</i>	181
11 Subdivision Methods for the Topology of 2d and 3d Implicit Curves	
<i>C. Liang, B. Mourrain, J.-P. Pavone</i>	199
12 Approximate Implicitization of Space Curves and of Surfaces of Revolution	
<i>M. Shalaby, B. Jüttler</i>	215
Index	229

Geometric Modeling and Algebraic Geometry

Jüttler, B.; Piene, R. (Eds.)

2008, VIII, 231 p., Hardcover

ISBN: 978-3-540-72184-0