

Book Chapters

- [1] Marc Mörig, Sven Scholz, Tobias Tscheuschner, and Eric Berberich. Implementation aspects. In Müller-Hannemann and Schirra [3], pages 237–289.
- [2] Eric Berberich, Matthias Hagen, Benjamin Hiller, and Hannes Moser. Experiments. In Müller-Hannemann and Schirra [3], pages 325–388.
- [3] Matthias Müller-Hannemann and Stefan Schirra, editors. *Algorithm Engineering: Bridging the Gap between Algorithm Theory and Practice [outcome of a Dagstuhl Seminar]*, volume 5971 of *Lecture Notes in Computer Science*. Springer, 2010.

Journal papers

- [4] Eric Berberich, Pavel Emeliyanenko, Alexander Kobel, and Michael Sagraloff. Exact symbolic-numeric computation of planar algebraic curves. *Theor. Comput. Sci.*, 491:1–32, 2013.
- [5] Eric Berberich, Dan Halperin, Michael Kerber, and Roza Pogalnikova. Deconstructing approximate offsets. *Discrete & Computational Geometry*, 48:964–989, 2012.
- [6] Eric Berberich, Efi Fogel, Dan Halperin, Kurt Mehlhorn, and Ron Wein. Arrangements on parametric surfaces I: General framework and infrastructure. *Mathematics in Computer Science*, 4:45–66, 2010. 10.1007/s11786-010-0042-5.
- [7] Eric Berberich, Efi Fogel, Dan Halperin, Michael Kerber, and Ophir Setter. Arrangements on parametric surfaces II: Concretizations and applications. *Mathematics in Computer Science*, 4:67–91, 2010. 10.1007/s11786-010-0043-4.
- [8] Eric Berberich, Michael Kerber, and Michael Sagraloff. An efficient algorithm for the stratification and triangulation of an algebraic surface. *Computational Geometry: Theory and Applications*, 43(3):257–278, April 2010.

- [9] Eric Berberich and Michael Sagraloff. A generic and flexible framework for the geometrical and topological analysis of (algebraic) surfaces. *Computer Aided Geometric Design*, 26(6):627–647, August 2009.

Conference Proceedings

- [10] Eric Berberich. CGAL - reliable geometric computing for academia and industry. In Hong and Yap [30], pages 191–197.
- [11] Eric Berberich. Robustly and efficiently computing algebraic curves and surfaces. In Hong and Yap [30], pages 253–260.
- [12] Eric Berberich, Dan Halperin, Michael Kerber, and Roza Pogalnikova. Deconstructing approximate offsets. In Ferran Hurtado and Marc van Krefeld, editors, *Proceedings of the 27th Annual Symposium on Computational Geometry*, pages 187–196, Paris, France, June 2011. ACM.
- [13] Eric Berberich, Michael Hemmer, and Michael Kerber. A generic algebraic kernel for non-linear geometric applications. In Ferran Hurtado and Marc van Krefeld, editors, *Proceedings of the 27th Annual Symposium on Computational Geometry*, pages 179–186, Paris, France, June 2011. ACM.
- [14] Eric Berberich, Pavel Emeliyanenko, Alexander Kobel, and Michael Sagraloff. Arrangement computation for planar algebraic curves. In *Proceedings of the 2011 International Workshop on Symbolic-Numeric Computation, SNC '11*, pages 88–98, New York, NY, USA, 2011. ACM.
- [15] Eric Berberich, Pavel Emeliyanenko, and Michael Sagraloff. An elimination method for solving bivariate polynomial systems: Eliminating the usual drawbacks. In Matthias Müller-Hannemann and Renato Werneck, editors, *Proceedings of the Thirteenth Workshop on Algorithm Engineering and Experiments (ALENEX2011)*, pages 35–47, San Francisco, USA, January 2011. Society for Industrial and Applied Mathematics (SIAM).
- [16] Eric Berberich, Dan Halperin, Michael Kerber, and Roza Pogalnikova. Polygonal reconstruction from approximate offsets. In Jan Vahrenhold, editor, *26th European Workshop on Computational Geometry: Workshop Proceedings*, pages 65–68, Dortmund, Germany, March 2010. TU Dortmund.
- [17] Pavel Emeliyanenko, Eric Berberich, and Michael Sagraloff. Visualizing arcs of implicit algebraic curves, exactly and fast. In G. Bebis, R. Boyle, B. Parvin, D. Koracin, P. Remagnino, F. Porikli, J. Peters, J. Klosowski, L. Arns, Y.K. Chun, T.-M. Rhyne, and L. Monroe, editors, *5th International Symposium on Visual Computing*, volume 5875 of *Lecture Notes in Computer Science*, pages 608–619, Las Vegas, U.S., 2009. Springer.

- [18] Eric Berberich, Michael Kerber, and Michael Sagraloff. Exact geometric-topological analysis of algebraic surfaces. In Monique Teillaud, editor, *Proceedings of the 24th ACM Symposium on Computational Geometry, College Park, MD, USA, June 9-11, 2008*, pages 164–173. ACM, June 2008. Invited for Special Issue of CGTA on SCG.
- [19] Eric Berberich and Michael Sagraloff. A generic and flexible framework for the geometrical and topological analysis of (algebraic) surfaces. In Eric Haines and Morgan McGuire, editors, *Proceedings of the 2008 ACM Symposium on Solid and Physical Modeling, Stony Brook, New York, USA, June 2-4, 2008*, pages 171–182. ACM, June 2008. Invited for Special Issue of CAGD on SPM.
- [20] Eric Berberich and Michael Kerber. Exact arrangements on tori and Dupin cyclides. In Eric Haines and Morgan McGuire, editors, *Proceedings of the 2008 ACM Symposium on Solid and Physical Modeling, Stony Brook, New York, USA, June 2-4, 2008*, pages 59–66. ACM, June 2008.
- [21] Eric Berberich and Michael Kerber. Arrangements on Surfaces of Genus One: Tori and Dupin Cyclides. In *Abstracts of 24th European Workshop on Computational Geometry*, pages 209–212. LORIA, Nancy, France, March 2008.
- [22] Eric Berberich, Michael Kerber, and Michael Sagraloff. Geometric Analysis of Algebraic Surfaces Based on Planar Arrangements. In *Abstracts of 24th European Workshop on Computational Geometry*, pages 29–32. LORIA, Nancy, France, March 2008.
- [23] Eric Berberich, Efi Fogel, Dan Halperin, Kurt Mehlhorn, and Ron Wein. Sweeping and maintaining two-dimensional arrangements on surfaces: A first step. In Lars Arge, Michael Hoffmann, and Emo Welzl, editors, *Algorithms - ESA 2007, 15th Annual European Symposium*, volume 4698 of *Lecture Notes in Computer Science*, pages 645–656, Eilat, Israel, October 2007. Springer.
- [24] Eric Berberich and Michal Meyerovitch. Computing envelopes of quadrics. In *Proceedings of 23rd European Workshop on Computational Geometry*, pages 235–238, Graz, Austria, March 2007. Technische Universität Graz.
- [25] Eric Berberich, Manuel Caroli, and Nicola Wolpert. Exact computation of arrangements of rotated conics. In *Proceedings of 23rd European Workshop on Computational Geometry*, pages 231–234, Graz, Austria, March 2007. Technische Universität Graz.
- [26] Eric Berberich, Efi Fogel, Dan Halperin, and Ron Wein. Sweeping and maintaining two-dimensional arrangements on surfaces. In *Proceedings of 23rd European Workshop on Computational Geometry*, pages 223–226, Graz, Austria, March 2007. Technische Universität Graz.

- [27] Eric Berberich, Arno Eigenwillig, Michael Hemmer, Susan Hert, Lutz Kettner, Kurt Mehlhorn, Joachim Reichel, Susanne Schmitt, Elmar Schömer, and Nicola Wolpert. Exacus: Efficient and exact algorithms for curves and surfaces. In Gerth S. Brodal and Stefano Leonardi, editors, *13th Annual European Symposium on Algorithms (ESA 2005)*, volume 3669 of *Lecture Notes in Computer Science*, pages 155–166, Palma de Mallorca, Spain, October 2005. European Association for Theoretical Computer Science (EATCS), Springer.
- [28] Eric Berberich, Michael Hemmer, Lutz Kettner, Elmar Schömer, and Nicola Wolpert. An exact, complete and efficient implementation for computing planar maps of quadric intersection curves. In Joe Mitchell, Günter Rote, and Lutz Kettner, editors, *21st Annual Symposium on Computational Geometry (SCG'05)*, pages 99–106, Pisa, Italy, June 2005. Association for Computing Machinery (ACM), ACM.
- [29] Eric Berberich, Arno Eigenwillig, Michael Hemmer, Susan Hert, Kurt Mehlhorn, and Elmar Schömer. A computational basis for conic arcs and boolean operations on conic polygons. In Rolf Möhring and Rajeev Raman, editors, *Algorithms - ESA 2002 : 10th Annual European Symposium*, volume 2461 of *Lecture Notes in Computer Science*, pages 174–186, Rome, Italy, September 2002. Springer.
- [30] Hoon Hong and Chee Yap, editors. *Mathematical Software - ICMS 2014 - 4th International Congress, Seoul, South Korea, August 5-9, 2014. Proceedings*, volume 8592 of *Lecture Notes in Computer Science*. Springer, 2014.

Technical Reports and arXived Publications

- [31] Eric Berberich, Pavel Emeliyanenko, Alexander Kobel, and Michael Sagraloff. Exact symbolic-numeric computation of planar algebraic curves. *CoRR*, abs/1201.1548, 2012.
- [32] Eric Berberich, Dan Halperin, Michael Kerber, and Roza Pogalnikova. Deconstructing approximate offsets. *CoRR*, abs/1109.2158, 2011.
- [33] Eric Berberich, Pavel Emeliyanenko, Alexander Kobel, and Michael Sagraloff. Arrangement computation for planar algebraic curves. *CoRR*, abs/1103.4697, 2011.
- [34] Eric Berberich, Pavel Emeliyanenko, and Michael Sagraloff. An elimination method for solving bivariate polynomial systems: Eliminating the usual drawbacks. *CoRR*, abs/1010.1386, 2010.
- [35] Eric Berberich, Michael Hemmer, and Michael Kerber. A Generic Algebraic Kernel for Non-linear Geometric Applications. Research Report RR-7274, INRIA, May 2010.
- [36] Eric Berberich, Efi Fogel, Dan Halperin, Michael Kerber, Michael Sagraloff, and Ophir Setter. Toward a package for constructing and manipulating three-dimensional arrangements of sur-

- faces. Technical Report ACS-TR-361501-01, Max-Planck-Institut für Informatik Saarbrücken, Tel-Aviv University, 2008.
- [37] Eric Berberich and Michael Sagraloff. A generic and flexible framework for the geometrical and topological analysis of (algebraic) surfaces. Technical Report ACS-TR-363605-01, Max-Planck-Institut für Informatik Saarbrücken, 2008.
- [38] Eric Berberich and Pavel Emeliyanenko. *CGAL's Curved Kernel via Analysis*. Technical Report ACS-TR-123203-04, Max-Planck-Institut für Informatik Saarbrücken, 2008.
- [39] Eric Berberich and Lutz Kettner. Linear-time reordering in a sweep-line algorithm for algebraic curves intersecting in a common point. Research Report MPI-I-2007-1-001, Max-Planck-Institut für Informatik, Saarbrücken, Germany, jul 2007.
- [40] Eric Berberich, Michael Hemmer, Menelaos I. Karavelas, and Monique Teillaud. Revision of interface specification of algebraic kernel. Technical Report ACS-TR-243301-01, INRIA Sophia-Antipolis, Max-Planck-Institut für Informatik Saarbrücken, National University of Athens, 2007.
- [41] Eric Berberich and Michael Hemmer. Definition of the 3d quadric kernel content. Technical Report ACS-TR-243302-02, Algorithms for Complex Shapes with certified topology and numerics, Max-Planck-Institut für Informatik Saarbrücken, 2007.
- [42] Eric Berberich, Efi Fogel, and Andreas Meyer. Updated website to include benchmark instances for arrangements of quadrics and planar algebraic curves. Technical Report ACS-TR-243305-01, Algorithms for Complex Shapes with certified topology and numerics, Max-Planck-Institut für Informatik Saarbrücken, Tel-Aviv University, 2007.
- [43] Eric Berberich, Efi Fogel, Dan Halperin, Kurt Mehlhorn, and Ron Wein. Sweeping and maintaining two-dimensional arrangements on quadrics. Technical Report ACS-TR-241402-02, Algorithms for Complex Shapes with certified topology and numerics, Max-Planck-Institut für Informatik Saarbrücken, Tel-Aviv University, 2007.
- [44] Eric Berberich and Michal Meyerovitch. Computing envelopes of quadrics. Technical Report ACS-TR-241402-03, Algorithms for Complex Shapes with certified topology and numerics, Max-Planck-Institut für Informatik Saarbrücken, Tel-Aviv University, 2007.
- [45] Eric Berberich, Manuel Caroli, and Nicola Wolpert. Exact computation of arrangements of rotated conics. Technical Report ACS-TR-123104-03, Max-Planck-Institut für Informatik Saarbrücken, 2007.
- [46] Eric Berberich, Michael Hemmer, Menelaos I. Karavelas, Sylvain Pion, Teillaud Monique, and Elias Tsigaridas. Prototype implementation of the algebraic kernel. Technical Report ACS-TR-

121202-01, INRIA Sophia-Antipolis, Max-Planck-Institut für Informatik Saarbrücken, National University of Athens, 2006.

- [47] Eric Berberich, Michael Hemmer, Menelaos Karavelas, Sylvain Pion, Monique Teillaud, and Elias Tsigaridas. Interface specification of algebraic kernel. Technical Report ACS-TR-123101-01, INRIA Sophia-Antipolis, Max-Planck-Institut für Informatik Saarbrücken, National University of Athens, 2006.
- [48] Eric Berberich, Franziska Ebert, and Lutz Kettner. Web-site with benchmark instances for planar curve arrangements. Technical Report ACS-TR-123108-01, Max-Planck-Institut für Informatik Saarbrücken, 2006.
- [49] Eric Berberich, Franziska Ebert, and Lutz Kettner. Definition of file format for benchmark instances for arrangements of quadrics. Technical Report ACS-TR-123109-01, Max-Planck-Institut für Informatik Saarbrücken, 2006.
- [50] Efraim Fogel, Dan Halperin, Ron Wein, Sylvain Pion, Monique Teillaud, Ioannis Emiris, Athanasios Kakargias, Elias Tsigaridas, Eric Berberich, Arno Eigenwillig, Michael Hemmer, Lutz Kettner, Kurt Mehlhorn, Elmar Schömer, and Nicola Wolpert. An empirical comparison of software for constructing arrangements of curved arcs (preliminary version). Technical Report ECG-TR-361200-01, INRIA Sophia-Antipolis, Max-Planck-Institut für Informatik Saarbrücken, Tel-Aviv University, 2004.
- [51] Eric Berberich, Arno Eigenwillig, Michael Hemmer, Susan Hert, Lutz Kettner, Kurt Mehlhorn, Joachim Reichel, Susanne Schmitt, Elmar Schömer, Dennis Weber, and Nicola Wolpert. Exacus: Efficient and exact algorithms for curves and surfaces. Technical Report ECG-TR-361200-02, Max-Planck-Institut für Informatik Saarbrücken, 2004.
- [52] Efi Fogel, Dan Halperin, Ron Wein, Monique Teillaud, Eric Berberich, Arno Eigenwillig, Susan Hert, and Lutz Kettner. Specification of the traits classes for cgal arrangements of curves. Technical Report ECG-TR-241200-01, INRIA Sophia-Antipolis, Max-Planck-Institut für Informatik Saarbrücken, Tel-Aviv University, 2003.
- [53] Eric Berberich, Arno Eigenwillig, Michael Hemmer, Susan Hert, Kurt Mehlhorn, and Elmar Schömer. A computational basis for conic arcs and boolean operations on conic polygons. Technical Report ECG-TR-122103-01, Max-Planck-Institut für Informatik Saarbrücken, 2002. Submitted to ESA 2002.
- [54] Eric Berberich, Arno Eigenwillig, Michael Hemmer, Susan Hert, Kurt Mehlhorn, and Elmar Schoemer. The conix library – a kernel for conic arrangements with prototype implementations. Technical Report ECG-TR-181204-02, Max-Planck-Institut für Informatik Saarbrücken, 2002.

- [55] Eric Berberich. *Robust and Efficient Software for Problems in 2.5-Dimensional Non-Linear Geometry (Algorithms and Implementations)*. PhD thesis, Universität des Saarlandes, Germany, 2008.
- [56] Eric Berberich. *Exact Arrangements of Quadric Intersection Curves*. Universität des Saarlandes, Saarbrücken, Germany, 2004. Diplomarbeit; awarded with the Günter-Hotz-Medal for outstanding thesis in 2004.