Record Nr. UNINA9910788794103321 **Titolo** Surveys on discrete and computational geometry: twenty years later: AMS-IMS-SIAM Joint Summer Research Conference, June 18-22, 2006. Snowbird, Utah / / Jacob E. Goodman, Janos Pach, Richard Pollack, editors Pubbl/distr/stampa Providence, Rhode Island:,: American Mathematical Society,, [2008] ©2008 **ISBN** 0-8218-8132-9 0-8218-4239-0 Descrizione fisica 1 online resource (568 p.) Collana Contemporary mathematics, . 0271-4132 : : 453 Disciplina 516/.13 Soggetti Combinatorial geometry Geometry - Data processing Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references. Nota di contenuto ""Contents""; ""Preface""; ""Musings on discrete geometry and ""20 years of Discrete & Computational Geometry"""; ""State of the union (of geometric objects)""; ""Metric graph theory and geometry: a survey""; ""Extremal problems for convex lattice polytopes: a survey""; ""On simple arrangements of lines and pseudo-lines in P2 and R2 with the maximum number of triangles""; ""The computational complexity of convex bodies""; ""Algorithmic semi-algebraic geometry and topology a €? recent progress and open problems""; ""1. Introduction""; ""2. Semialgebraic Geometry: Background"" ""3. Recent Algorithmic Results"""4. Algorithmic Preliminaries""; ""5. Topological Preliminaries""; ""6. Algorithms for Computing the First Few Betti Numbers""; ""7. The Quadratic Case""; ""8. Betti Numbers of Arrangements""; ""9. Open Problems""; ""Acknowledgment""; ""References""; ""Expansive motions""; ""All polygons flip finitely a€? right?""; ""Persistent homologya€?a survey""; ""Recent progress on line transversals to families of translated ovals""; ""An improved, simple construction of many halving edges""; ""Unfolding orthogonal polyhedra""

""The discharging method in combinatorial geometry and the Pach-Sharir conjecture"""Pseudo-triangulationsa€?a survey""; ""1. Introduction""; ""2. Basic Properties of Pseudo-Triangulations""; ""3. The Set of all Pseudo-Triangulations""; ""4. 3D Liftings and Locally Convex Functions""; ""5. Self-Stresses, Reciprocal Diagrams, and the Maxwell-Cremona Correspondence""; ""6. Pseudo-Triangulations and Rigidity""; ""7. Planar Rigid Graphs are Pseudo-Triangulations""; ""8. Polytopes of Pseudo-Triangulations""; ""9. Applications of Pseudo-Triangulations""; ""References""

""Line problems in nonlinear computational geometry""""On empty hexagons""; ""k-sets and k-facets""; ""1. Introduction""; ""2. Preliminaries""; ""3. Random Sampling""; ""4. Special Point Sets""; ""5. Lower Bounds""; ""6. Upper Bounds for Halving Facets in All Dimensions""; ""7. Crossings in Dimension 2.""; ""8. Improvements in Three And Four Dimensions""; ""9. Convex Quadrilaterals""; ""10. Connections to the Combinatorial Theory of Convex Polytopes""; ""References""; ""An ErdA?s-Szekeres type problem for interior points"" ""The kissing number, blocking number and covering number of a convex body""""Open problems""