

Overview Schedule: 16-20 June 2012 at UNC Chapel Hill

## ACM Symposium on Computational Geometry (SoCG) & Computational Geometry: Applications, Practice, and Theory (CG:APT)

[socg2012.web.unc.edu](http://socg2012.web.unc.edu)

### Saturday, 16 June 2012

6-8:30 PM SNL: Welcome Reception, conference registration  
[\(accommodation check-ins are at the hotels/dorm\)](#)

### Room Acronyms:

*SNL: Sitterson lobbies*  
*SN0xx: Sitterson ground floor*  
*FBxxx: F.P.Brooks building*  
*CP2xx: Chapman 2nd floor.*

### Sunday, 17 June 2012

7:30 AM	SNL: registration & breakfast		
8:35 AM	CP211: welcome		
8:40 AM	SoCG I CP211: 4 talks (ch: P. Agarwal)		
10:10 AM	SNL: coffee break		
10:30 AM	SoCG II CP211: 4 talks (ch: Y. Wang)		
12:00 PM	SNL: lunch provided		
1:00 PM	Inv. Talk CP211: Jane Richardson		
1:55 PM	Fast Forward overview		
	<a href="#">Young Researchers Forum (Fekete)</a>	<a href="#">Computational Geometry &amp; Learning (Giesen, Müller, Rote)</a>	<a href="#">Public Geom/ Top Software (Karavelas, Teillaud)</a>
2:20 PM	YRF SN011: Motion Planning,	CGL SN014: M. Maggioni	GTS FB007: Perst Homology (Morozov, Vejdemo-Johansson)
3:05 PM	4 talks	CGL SN014: J. Giesen	
3:20 PM			
3:35 PM	SNL: coffee break	SNL: coffee break	SNL: coffee break
3:50 PM			
4:05 PM	YRF SN011: Practical	CGL SN014: P. Agarwal	GTS FB007: Man Topol & Graph Drwng (Burton, Gutwenger)
4:10 PM	Geometry, 4 talks	CGL SN014: F. Chazal	
4:50 PM			
5:20 PM			
5:45 PM	SoCG Business meeting SN014		
7:00 PM			

**Monday, 18 June 2012**

8:00 AM	SNL: breakfast	
8:40 AM	SoCG III CP211: 4 talks (ch: T. Tokuyama)	
10:10 AM	SNL: coffee break	
10:30 AM	SoCG IVa CP211: 4 talks (ch:Y.Wang)	SoCG IVb CP201: 4 (ch:D.Manocha)
12:00 PM	SNL: lunch provided	
1:00 PM	Inv. Talk CP211: Chris Bishop	
1:55 PM	Fast Forward overview	

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	<a href="#">Young Researchers Forum (Fekete)</a>	<a href="#">Discrete Differential Geometry (Hirani, Desbrun)</a>	<a href="#">CGAL: an Open Gate to CG (Hemmer, Yvinec)</a>	<a href="#">Connections bn Analysis &amp; Comp Geom (Bishop)</a>	
2:20 PM	YRF SN011: Higher-Dimensions, 4 talks	DDG FB009: E. Grinspun	CGAL SN014: intro CGAL	AnCG FB007: R. Schul	
2:35 PM			CGAL SN014:		
3:00 PM		DDG FB009: P. Memari	A. Kroeller	AnCG FB007:	
3:05 PM				M. Maggioni	
3:15 PM			CGAL SN014:		
3:30 PM		DDG FB009: K. Crane	R. van de Weijgaert		
3:35 PM		SNL: coffee break		SNL: coffee break	
3:50 PM					
3:55 PM			CGAL SN014: Poster FFwd		
4:00 PM			SNL: coffee break		
4:05 PM	YRF SN011: Topology, 4 talks		SNL: coffee break & posters	AnCG FB007:	
4:10 PM				A. Israel	
4:20 PM		DDG FB009:			
4:40 PM		F. de Goes	CGAL SN014:		
4:50 PM		DDG FB009: E. Vouga	J. Martin		
4:55 PM				AnCG FB007:	
5:20 PM		break	DDG FB009: Y. Tong	CGAL SN014:	K. Stephenson
5:35 PM		YRF SN011:		I. Emeris	
5:40 PM	Discrete Geom, 3 talks			AnCG FB007: Open problems	
6:00 PM					

Tuesday 19 June 2012	
8:00 AM	SNL: breakfast
8:40 AM	SoCG V CP211: 4 talks (ch: T. Dey)
10:10 AM	SNL: coffee break
10:30 AM	SoCG VIa CP211: 4 (ch:L.Guibas)      SoCG VIb CP201: 4 talks (ch:D.Chen)
12:00 PM	lunch on your own
2:00 PM	Inv. Talk CP211: Rien van de Weygaert
2:55 PM	Fast Forward overview
	<a href="#">Young Researchers Forum (Fekete)</a>
	<a href="#">Algorithms in the Field: Comp Geom (Phillips, Venkat.)</a>
	<a href="#">Public Geom/ Top Software (Karavelas, Teillaud)</a>
	<a href="#">Comp Topology (Bendich, Morozov, Edelsbrunner)</a>
	<a href="#">Flow cut gaps &amp; L1 Embed of Graphs (Lee)</a>
3:20 PM	YRF SN011: Clustering & Composition, 4 talks
4:05 PM	8F SN014: V. Pascucci
4:35 PM	8F SN014: L. Arge
4:50 PM	SNL: coffee break
5:05 PM	SNL: coffee break
5:20 PM	YRF SN011: Location, 4 talks
5:50 PM	8F SN014: D. Mount
6:05 PM	8F SN014: N. Amenta
6:10 PM	SNL: break
6:20 PM	GTS FB007: Software Demos
6:50 PM	
7:00 PM	Banquet, Top of the Hill Great Room.

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	<a href="#">Young Researchers Forum (Fekete)</a>	<a href="#">Algorithms in the Field: Comp Geom (Phillips, Venkat.)</a>	<a href="#">Public Geom/ Top Software (Karavelas, Teillaud)</a>	<a href="#">Comp Topology (Bendich, Morozov, Edelsbrunner)</a>	<a href="#">Flow cut gaps &amp; L1 Embed of Graphs (Lee)</a>
3:20 PM	YRF SN011: Clustering & Composition, 4 talks	8F SN014: V. Pascucci	GTS FB007: Polytope Geom & Rigidity (Joswig, Fox)		E FB141: J. Lee
4:05 PM	SNL: coffee break	8F SN014: L. Arge	SNL: coffee break	CT FB009: E. Chambers	E FB141: T. Sidiropoulos
4:35 PM	SNL: coffee break	SNL: coffee break	SNL: coffee break	CT FB009: D. Salinas	SNL: coffee break
4:50 PM	YRF SN011: Location, 4 talks	8F SN014: D. Mount	GTS FB007: Triangulations & Voronoi (Karavelas)	CT FB009: M. Vejdemo-Johansson	E FB141: M. Moharrami
5:20 PM		8F SN014: N. Amenta	SNL: break	CT FB009: D. Muellner	E FB141: S. Kannan
5:50 PM			GTS FB007: Software Demos		
6:05 PM					
6:10 PM					
6:20 PM					
6:50 PM					
7:00 PM	Banquet, Top of the Hill Great Room.				

<b>Wednesday 20 June 2012</b>		
8:00 AM	SNL: breakfast	
8:40 AM	SoCG VIIa CP211: 4 talks (ch:J.Sun)	SoCG VIIb CP201: 4 (S. Whitesides)
10:10 AM	SNL: coffee break	
10:30 AM	SoCG VIII CP211: 4 talks (ch:T. Tokuyama)	
12:00 PM	SNL: lunch provided	
1:00 PM	Video review: 4 videos (ch: J. Mitchell)	
1:55 PM	Fast Forward overview	
	<a href="#">Algorithms in the Field: Comp Geom (Phillips, Venkat.)</a>	<a href="#">Comp Topology (Bendich, Morozov, Edelsbrunner)</a>
2:20 PM	8F SN014:	CT SN011: A. Patel
2:50 PM	D. Halperin	CT SN011: B. Fasy
3:05 PM	8F SN014: J. Gao	
3:20 PM		CT SN011: F. Fan
3:50 PM	SNL: coffee break	SNL: coffee break
4:20 PM	8F SN014: M. Mahoney	CT SN011: J. Gamble
4:50 PM		CT SN011: L. Munch
5:05 PM	8F SN014:	
5:20 PM	T. Fletcher	CT SN011: B. Wang
5:50 PM		

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ACM SoCG detailed schedule

**Session I: Sunday, June 17, Chapman 211 (ch: P. Agarwal)**

8:35 Welcome

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8:40 [On Topological Changes in The Delaunay Triangulation of Moving Points](#)

Natan Rubin (Freie Universität Berlin)

9:02 [Geometric Packing under Non-uniform Constraints](#)

[Geometric Packing under Non-uniform Constraints](#)

Sariel Har-Peled (University of Illinois, Urbana-Champaign)

Benjamin Raichel (University of Illinois, Urbana-Champaign)

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9:25 [Computing Cartograms with Optimal Complexity](#)

Md. Jawaherul Alam (University of Arizona)

Therese Biedl (University of Waterloo)

Stefan Felsner (Technische Universität Berlin)

Michael Kaufmann (Universität Tübingen)

Stephen G. Kobourov (University of Arizona)

Torsten Ueckerdt (Technische Universität Berlin)

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9:47 [Approximate Bregman Near Neighbors in Sublinear Time: Beyond the Triangle Inequality](#)

Amirali Abdullah (University of Utah)

John Moeller (University of Utah)

Suresh Venkatasubramanian (University of Utah)

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10:10 **Coffee Break, Sitterson Upper Lobby**

**Session II: Sunday, June 17, Chapman 211 (ch: Y. Wang)**

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10:30 [The Point-Set Embeddability Problem for Plane Graphs](#)

Therese Biedl (University of Waterloo)

Martin Vatshelle (University of Bergen)

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10:52 [Algorithmic Complexity of Finding Cross-Cycles in Flag Complexes](#)

Micha Adamaszek (University of Warwick)

Juraj Stacho (University of Warwick)

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11:15 [Counting Crossing-Free Structures](#)

Victor Alvarez (Universität des Saarlandes)

Karl Bringmann (Max-Planck-Institut für Informatik)

Radu Curticapean (Universität des Saarlandes)

Saurabh Ray (Max-Planck-Institut für Informatik)

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11:37 [A Fast and Simple Surface Reconstruction Algorithm](#)

Siu-Wing Cheng (Hong Kong University of Science and Technology)

Jiongxin Jin (Hong Kong University of Science and Technology)

Man-Kit Lau (Hong Kong University of Science and Technology)

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12:00 **Lunch provided, Sitterson Upper Lobby**

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13:00 **Plenary Talk: Jane Richardson (intro: J. Snoeyink), Chap 211**

[Protein Molecules in 3D: Complex Behavior from Simple Local Geometry plus Weak Interactions](#)

Jane S. Richardson (Duke University Medical Center)

David C. Richardson (Duke University Medical Center)

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17:45 **ACM SoCG Business meeting, Sitterson 014**

*Afternoon workshops: Young Researchers Forum, Computational Geometry and Learning  
Publically Available Geometric Software*

### Session III: Monday, June 18, Chapman 211 (ch: T. Tokuyama)

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8:40 [Higher-Order Erdos-Szekeres Theorems](#)

Marek Eliáš (Charles University)

Jirí Matoušek (Charles University & ETH Zurich)

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9:02 [Add Isotropic Gaussian Kernels at Own Risk: More and More Resilient Modes in Higher Dimensions](#)

Herbert Edelsbrunner (IST Austria)

Brittany Terese Fasy (Duke University)

Günter Rote (Freie Universität Berlin)

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9:25 [On the Expected Complexity of Voronoi Diagrams on Terrains](#)

Anne Driemel (Utrecht University)

Sariel Har-Peled (University of Illinois, Urbana-Champaign)

Benjamin Raichel (University of Illinois, Urbana-Champaign)

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9:47 [On Klee's Measure Problem for Grounded Boxes](#)

Hakan Yildiz (University of California, Santa Barbara)

Subhash Suri (University of California, Santa Barbara)

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10:10 **Coffee Break, Sitterson Upper Lobby**

#### Monday, June 18: IVa, Chap 211 (Y. Wang)

10:30 [How to Walk Your Dog in the Mountains with No Magic Leash](#)

Sariel Har-Peled, (UIUC)

Amir Nayyeri (UIUC)

Mohammad Salavatipour (U Alberta)

Anastasios Sidiropoulos (Toyota Tech Inst Chicago)

10:52 [Tracing Compressed Curves in Triangulated Surfaces](#)

Jeff Erickson (UIUC)

Amir Nayyeri (UIUC)

11:15 [Testing Graph Isotopies on Surfaces](#)

Éric Colin de Verdière (ENS, Paris)

Arnaud de Mesmay (ENS, Paris)

11:37 [On Laplacians of Random Complexes](#)

Anna Gundert (ETH Zürich)

Uli Wagner (ETH Zürich)

#### IVb, Chap 201 (ch. D. Manocha)

[Approximating Low-Dimensional Coverage Problems](#)

Ashwinkumar Badanidiyuru (Cornell University)

Robert Kleinberg (Cornell University)

Hooyeon Lee (Stanford University)

[Improved Range Searching Lower Bounds](#)

Kasper Green Larsen (Aarhus University)

Huy L. Nguyen (Princeton University)

[An Output-sensitive Algorithm for Computing Projections of Resultant Polytopes](#)

Ioannis Z. Emiris (University of Athens)

Vissarion Fisikopoulos (University of Athens)

Christos Konaxis (University of Crete)

Luis Peñaranda (University of Athens)

[Counting Plane Graphs: Perfect Matchings, Spanning Cycles, and Kasteleyn's Technique](#)

Micha Sharir (Tel Aviv U & NYU)

Adam Sheffer (Tel Aviv University)

Emo Welzl (ETH Zürich)

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12:00 **Lunch provided, Sitterson Upper Lobby**

13:00 **Plenary Talk: Christopher Bishop (intro: S. Whitesides) Chap 211**  
[Mappings and Meshes](#)

Christopher Bishop (Stony Brook University)

*Afternoon workshops: Young Researchers Forum, Discrete Differential Geometry, CGAL: an Open Gate, Analysis in Computational Geometry*

## Session V: Tuesday, June 19, Chapman 211 (ch: T. Dey)

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8:40 [Cubic Plane Graphs on a Given Point Set](#)

Jens M. Schmidt (Max-Planck-Institut für Informatik)  
Pavel Valtr (Charles University)

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9:02 [Multinerves and Helly Numbers of Acyclic Families](#)

Éric Colin de Verdière (École normale supérieure)  
Grégory Ginot (Université Pierre et Marie Curie)  
Xavier Goaoc (INRIA Nancy Grand-Est)

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9:25 [Duals of Orphan-Free Anisotropic Voronoi Diagrams are Embedded Meshes](#)

Guillermo D. Canas (Massachusetts Institute of Technology)  
Steven J. Gortler (Harvard University)

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9:47 [Stability of Delaunay-type Structures for Manifolds](#)

Jean-Daniel Boissonnat (INRIA)  
Ramsay Dyer (INRIA)  
Arijit Ghosh (INRIA Sophia-Antipolis)

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10:10 **Coffee Break, Sitterson Upper Lobby**

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### Tuesday, June 19, VIa, Chap 211 (L. Guibas)

10:30 [Linear-Size Approximations to the Vietoris-Rips Filtration](#)

Donald R. Sheehy (INRIA Saclay)

10:52 [Alexander Duality for Functions: The Persistent Behavior of Land and Water and Shore](#)

Herbert Edelsbrunner (IST Austria)  
Michael Kerber (IST Austria)

11:15 [Certified Computation of Planar Morse-Smale Complexes](#)

Amit Chattopadhyay (U Cathol de Louvain)  
Gert Vegter (University of Groningen)  
Chee K. Yap (New York University)

11:37 [A Deterministic  \$O\(m \log m\)\$  Time Algorithm for the Reeb Graph](#)

Salman Parsa (Duke University)

### VIb, Chapman 201 (ch. D. Chen)

[Self-improving Algorithms for Coordinate-wise Maxima](#)

Kenneth L. Clarkson (IBM Almaden)  
Wolfgang Mulzer (Freie Universität Berlin)  
C. Seshadhri (Sandia National Laboratories)

[Finding the Maximal Empty Disk Containing a Query Point](#)

Haim Kaplan (Tel Aviv University)  
Micha Sharir (Tel Aviv U & NYU)

[Conflict-Free Coloring of Points with Respect to Rectangles and Approximation Algorithms for Discrete Independent Set](#)

Timothy M. Chan (University of Waterloo)

[Approximating Tverberg Points in Linear Time for Any Fixed Dimension](#)

Wolfgang Mulzer (Freie Universität Berlin)  
Daniel Werner (Freie Universität Berlin)

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12:00 **Lunch on your own**

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14:00 **Plenary Talk: Rien van de Weygaert (intro: T. Dey), Chap 211**

[Tessellation Analysis of the Cosmic Web](#)  
Rien van de Weygaert (Kapteyn Astronomical Institute)

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19:00 **Banquet, Top of the Hill Great Room**

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*Afternoon workshops: Young Researchers Forum, Algorithms in the Field, Geometric Software, Computational Topology, L1 Embedding of Graphs*

<b>Wednesday, June 20, Villa, Chap211 (J. Sun)</b>	<b>VIIIb, Chap 201 (ch. S. Whitesides)</b>
8:40 <a href="#">Stabbing Horizontal Segments with Vertical Rays</a>  Yufei Tao (Chinese U of Hong Kong & KAIST)	<a href="#">Periodic Body-and-Bar Frameworks</a>  Ciprian Borcea (Rider University) Ileana Streinu (Smith College) Shin-ichi Tanigawa (Kyoto University)
9:02 <a href="#">Higher-dimensional Orthogonal Range Reporting and Rectangle Stabbing in the Pointer Machine Model</a>  Peyman Afshani (Aarhus University) Lars Arge (Aarhus University) Kasper Green Larsen (Aarhus University)	<a href="#">On Sub-Determinants and the Diameter of Polyhedra</a>  Nicolas Bonifas (École Polytech Palaiseau & IBM) Marco Di Summa (Università di Padova) Friedrich Eisenbrand (Technische Universität Berlin) Nicolai Hähnle (Technische Universität Berlin) Martin Niemeier (Technische Universität Berlin)
9:25 <a href="#">A Theorem of Bárány Revisited and Extended</a>  Nabil H. Mustafa (Université Paris-Est) Saurabh Ray (Max-Planck-Institut für Informatik)	<a href="#">Optimal Area-Sensitive Bounds for Polytope Approximation</a>  Sunil Arya (Hong Kong UST) Guilherme D. da Fonseca (U Fed do Rio) David M. Mount (U of Maryland, College Park)
9:47 <a href="#">Improved Pointer Machine and I/O Lower Bounds for Simplex Range Reporting and Related Problems</a>  Peyman Afshani (MADALGO & Aarhus University)	<a href="#">Object-Image Correspondence for Curves under Central and Parallel Projections</a>  Joseph M. Burdis (North Carolina State U) Irina A. Kogan (North Carolina State U)

10:10 **Coffee Break, Sitterson Upper Lobby**

### **Session VIII: Wednesday, June 20, Chap 211, (ch: T. Tokuyama)**

10:30 <a href="#">Disjoint Edges in Complete Topological Graphs</a>  Andrew Suk (Massachusetts Institute of Technology)
10:52 <a href="#">Representing a Cubic Graph as the Intersection Graph of Axis-parallel Boxes in Three Dimensions</a> Abhijin Adiga (Virginia Tech) L. Sunil Chandran (Indian Institute of Science)
11:15 <a href="#">The 2-page Crossing Number of <math>K_n</math></a> Bernardo M. Ábrego (California State University) Oswin Aichholzer (Graz University of Technology) Silvia Fernández-Merchant (California State University) Pedro Ramos (Universidad de Alcalá) Gelasio Salazar (Universidad Autónoma de San Luis Potosí)
11:37 <a href="#">String Graphs and Incomparability Graphs</a> Jacob Fox (Massachusetts Institute of Technology) János Pach (École Polytechnique Fédérale de Lausanne)
12:00 <b>Lunch provided, Sitterson Upper Lobby</b>

### **Video Session: Wednesday, June 20, Chap 211 (ch: J. Mitchell)**

14:00 <a href="#">Configuration Space Visualization</a> Dror Atarhah (Freie Universität Berlin) Günter Rote (Freie Universität Berlin)
14:14 <a href="#">Surface Patches from Unorganized Space Curves</a> Fatemeh Abbasinejad (University of California, Davis) Pushkar Joshi (Motorola Mobility)



Nina Amenta (University of California, Davis)

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**14:28** [Lang's Universal Molecule Algorithm](#)

John C. Bowers (University of Massachusetts, Amherst)

Ileana Streinu (Smith College)

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**14:42** [The Sticky Geometry of the Cosmic Web](#)

Johan Hidding (Groningen University)

Rien van de Weygaert (Groningen University)

Gert Vegter (Groningen University)

Bernard J. T. Jones (Groningen University)

Monique Teillaud (INRIA Sophia-Antipolis)

*Afternoon workshops: Algorithms in the Field, Computational Topology*