

CURRICULUM VITAE
CHRISTOS A. ATHANASIADIS

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PERSONAL INFORMATION

Birthdate: 24/02/1972
Birthplace: Larisa, Thessaly (Greece)
Marital Status: Married, one child
Citizenship: Greek.

EDUCATION

B.S. in Mathematics, MIT, 1992. CAMBRIDGE, MA
Ph.D in Mathematics, MIT, 1996. CAMBRIDGE, MA

ACADEMIC POSITIONS

MASSACHUSETTS INSTITUTE OF TECHNOLOGY CAMBRIDGE, MA
Norman Levinson Graduate Fellow, 1992–93.
Teaching Assistant–Research Assistant, 1993–96.

TECHNICAL UNIVERSITY OF BERLIN BERLIN
European Research Fellow, May–August 1996.

MATHEMATICAL SCIENCES RESEARCH INSTITUTE BERKELEY, CA
Postdoctoral Fellow, 1996–97.

UNIVERSITY OF PENNSYLVANIA PHILADELPHIA, PA
Hans Rademacher Instructor in Mathematics, 1997–99.

ROYAL INSTITUTE OF TECHNOLOGY STOCKHOLM
Visiting Researcher, 1999–2000.

UNIVERSITY OF CRETE HERAKLION
Assistant Professor of Mathematics, 2002–06.

MITTAG-LEFFLER INSTITUTE STOCKHOLM
Visitor, January–February and May–June 2005.

UNIVERSITY OF ATHENS ATHENS
Associate Professor of Mathematics, 2006–2010.

UNIVERSITY OF ATHENS ATHENS
Professor of Mathematics, 2010–present.

RESEARCH AREA

Algebraic and Geometric Combinatorics.

EDITORIALSHIPS

Co-Editor in Chief, *Journal of Algebraic Combinatorics*, 2013–2017.

Editorial Board Member, *Algebraic Combinatorics*, 2018–present.

INVITED TALKS (one hour)

Conferences

- *Workshop on Arrangements of Hyperplanes* (organized by M. Falk and H. Terao), Japanese Mathematical Society, Tokyo, July 1998.
- *Geometric Combinatorics* (Satellite Conference of ICM-98, organized by S. Vrećica and R. Zivaljević), Serbian Academy of Arts and Sciences, Kotor, Yugoslavia, August 1998 (one of 12 invited talks).
- *Combinatorial Aspects of Hyperplane Arrangements* (organized by E. Feichtner, P. Hanlon, A. Varchenko and S. Yuzvinsky), MSRI, November 2004.
- *Inside the Cube: Algebra, Combinatorics and Geometry* (organized by J. DeLoera and M. Henk), Otto-von-Guericke Universität, Magdeburg, July 2005 (one of 10 invited talks).
- *Geometric and Topological Combinatorics* (organized by G. Kalai and R. Zivaljević), Institute for Advanced Study, Hebrew University of Jerusalem, June 2007.
- *B-stable Ideals and Nilpotent Orbits* (organized by P. Papi and E. Sommers), Istituto Nazionale di Alta Matematica, University of Rome La Sapienza, October 2007.
- *Arrangements of Hyperplanes* (organized by T. Abe, H. Terao, M. Yoshinaga and S. Yuzvinsky), 2nd Seasonal Institute of the Japanese Mathematical Society, Hokkaido University, Sapporo, August 2009.
- *Lattice Point Enumeration*, Tulane University, New Orleans, March 2010.
- *Symposium on Discrete Mathematics* (organized by C. Krattenthaler), German Mathematical Society, Erwin Schrödinger Institute, Vienna, May 2010 (one of 5 invited talks).
- *Hyperplane Arrangements and Applications* (organized by T. Abe, M. Falk, M. Wakefield, M. Yoshinaga and S. Yuzvinsky), Pacific Institute for the Mathematical Sciences, University of British Columbia, Vancouver, August 2011.
- *Workshop on Convex Polytopes* (organized by T. Hibi), Research Institute for Mathematical Sciences, Kyoto University, Kyoto, July 2012.
- *Recent Trends in Algebraic and Geometric Combinatorics* (organized by K. Ebrahimi-Fard, V. Pilaud and J. Rué), ICMAT, Madrid, November 2013 (one of 12 invited talks).

- *Meeting on Combinatorial Commutative Algebra* (organized by A. Constantinescu, T. Kahle and M. Varbaro), Levico, Italy, September 2014.
- *Formal Power Series and Algebraic Combinatorics*, KAIST, Daejeon, South Korea, July 2015 (one of 9 invited talks).
- *The Japanese Conference on Combinatorics and its Applications*, Kyoto University, Kyoto, May 2016 (one of 9 invited talks).
- *The 77th Séminaire Lotharingien de Combinatoire* (organized by C. Krattenthaler, V. Strehl and J.Y. Thibon), Strobl, Austria, September 2016 (one of 2 invited series of three lectures).
- *Graduate Student Meeting on Applied Algebra and Combinatorics*, Osnabrück, Germany, March 2018 (one of 2 keynote invited lectures).

Mathematics Colloquia

- George Washington University, March 1998.
- Brown University, October 1998.
- ETH (applied math), Zurich, May 1999.
- Trinity College, Dublin, February 2007.
- University of Vienna, December 2007.
- TU Berlin, June 2008.
- Philipps Universität, Marburg, April 2009.
- University of Crete, May 2014.

Seminars (selected)

- Northeastern University, Combinatorics Seminar, February 1995.
- MIT, Combinatorics Seminar, March 1996.
- University of California at San Diego, Combinatorics Seminar, April 1996.
- California Institute of Technology, Combinatorics Seminar, April 1996.
- TU Berlin, Discrete Geometry Seminar, May 1996.
- UC Berkeley, Discrete Mathematics Seminar, October 1996.
- University of Minnesota, Combinatorics Seminar, May 1997.
- Temple University, Combinatorics Seminar, Philadelphia, November 1997.
- Princeton, Combinatorics and Representation Theory Seminar, November 1997.
- MIT, Combinatorics Seminar, November 1997.
- Cornell, Combinatorics and Algebraic Geometry Seminar, March 1999.
- UPenn, Combinatorics Seminar, April 1999.
- Stockholm University, Combinatorics Seminar, April 1999.

- University of Cantabria, Mathematics Seminar, Santander, December 1999.
- KTH, Combinatorics Seminar, Stockholm, March 2000.
- Institute Mittag-Leffler, Mittag-Leffler Seminar, Stockholm, February 2005.
- University of Minnesota, Combinatorics Seminar, April 2007.
- University of Vienna, Discrete Mathematics Seminar, December 2007.
- KTH, Combinatorics Seminar, Stockholm, April 2009.
- University of Cyprus, Mathematics Seminar, February 2010.
- National Technical University of Athens, Mathematics Seminar, March 2012.
- KTH, Combinatorics Seminar, Stockholm, February 2014 and August 2018.
- University of Cyprus, Mathematics Seminar, September 2018.

SHORT ACADEMIC VISITS (3-5 days)

- University of Minnesota, May 1997.
- KTH, April 1999.
- University of Cantabria, December 1999 and July 2002.
- University of Minnesota, February 2003.
- MSRI, November 2003.
- American Institute of Mathematics (AIM), January 2005.
- Philipps Universität, Marburg, June 2005.
- University of Minnesota, April 2007.
- Philipps Universität, Marburg, April 2009.
- KTH, April 2009.
- Bar-Ilan, September 2013.
- KTH, February 2014 and August 2018.

PUBLICATIONS

1. C.A. Athanasiadis, *Spectra of some interesting combinatorial matrices related to oriented spanning trees on a directed graph*, Journal of Algebraic Combinatorics **5** (1996), no. 1, 5–11.
2. R.M. Adin and C.A. Athanasiadis, *On Hanlon's eigenvalue conjecture*, Journal of Combinatorial Theory Series A **73** (1996), no. 2, 360–367.
3. C.A. Athanasiadis, *Iterating the branching operation on a directed graph*, Journal of Graph Theory **24** (1997), no. 3, 257–265.

4. C.A. Athanasiadis, *Characteristic polynomials of subspace arrangements and finite fields*, *Advances in Mathematics* **122** (1996), no. 2, 193–233.
5. C.A. Athanasiadis, *On free deformations of the braid arrangement*, *European Journal of Combinatorics* **19** (1998), no. 1, 7–18.
6. C.A. Athanasiadis, *A class of labeled posets and the Shi arrangement of hyperplanes*, *Journal of Combinatorial Theory Series A* **80** (1997), no. 1, 158–162.
7. C.A. Athanasiadis, *Piles of cubes, monotone path polytopes and hyperplane arrangements*, *Discrete and Computational Geometry* **21** (1999), no. 1, 117–130.
8. C.A. Athanasiadis and S. Linusson, *A simple bijection for the regions of the Shi arrangement of hyperplanes*, in *Gould Anniversary Volume* (I. Gessel et al. eds), *Discrete Mathematics* **204** (1999), no. 1–3, 27–39.
9. C.A. Athanasiadis, *Extended Linial hyperplane arrangements for root systems and a conjecture of Postnikov and Stanley*, *Journal of Algebraic Combinatorics* **10** (1999), no. 3, 207–225.
10. C.A. Athanasiadis, *On noncrossing and nonnesting partitions for classical reflection groups*, *Electronic Journal of Combinatorics* **5** (1998), no. 1, Research Paper 42, 16pp (electronic).
11. C.A. Athanasiadis, *The largest intersection lattice of a discriminantal arrangement*, *Contributions to Algebra and Geometry* **40** (1999), no. 2, 283–289.
12. C.A. Athanasiadis, J.A. De Loera, V. Reiner and F. Santos, *Fiber polytopes for the projections between cyclic polytopes*, in *Combinatorics of Polytopes* (K. Fukuda and G.M. Ziegler, eds.), *European Journal of Combinatorics* **21** (2000), no. 1, 19–47.
13. C.A. Athanasiadis, J. Rambau and F. Santos, *The generalized Baues problem for cyclic polytopes II*, in *Geometric Combinatorics* (S. Vrećica and R. Zivaljević, eds.), *Publ. De l'Institut Mathematique (Belgrade) (N.S.)* **66(80)** (1999), 3–15.
14. C.A. Athanasiadis, *Deformations of Coxeter hyperplane arrangements and their characteristic polynomials*, in *Arrangements – Tokyo 1998* (M. Falk and H. Terao, eds.), *Advanced Studies in Pure Mathematics* **27**, Kinokuniya, Tokyo, 2000, pp. 1–26.
15. C.A. Athanasiadis, P.H. Edelman and V. Reiner, *Monotone paths on polytopes*, *Mathematische Zeitschrift* **235** (2000), no. 2, 315–334.
16. C.A. Athanasiadis, *Projections of polytopes on the plane and the generalized Baues problem*, *Proceedings of the American Mathematical Society* **129** (2001), no. 7, 2103–2109.
17. C.A. Athanasiadis, *Zonotopal subdivisions of cyclic zonotopes*, *Geometriae Dedicata* **86** (2001), no. 1–3, 37–57.
18. C.A. Athanasiadis and F. Santos, *On the topology of the Baues poset of polyhedral subdivisions*, *Topology* **41** (2002), no. 3, 423–433.
19. C.A. Athanasiadis and F. Santos, *Monotone paths on zonotopes and oriented matroids*, *Canadian Journal of Mathematics* **53** (2001), no. 6, 1121–1140.

20. C.A. Athanasiadis, *Decompositions and connectivity of matching and chessboard complexes*, Discrete and Computational Geometry **31** (2004), no. 3, 395–403.
21. C.A. Athanasiadis, *Generalized Catalan numbers, Weyl groups and arrangements of hyperplanes*, Bulletin of the London Mathematical Society **36** (2004), no. 3, 294–302.
22. C.A. Athanasiadis, *On a refinement of the generalized Catalan numbers for Weyl groups*, Transactions of the American Mathematical Society **357** (2005), no. 1, 179–196.
23. C.A. Athanasiadis and V. Reiner, *Noncrossing partitions for the group D_n* , SIAM Journal on Discrete Mathematics **18** (2004), no. 2, 397–417.
24. C.A. Athanasiadis, *Ehrhart polynomials, simplicial polytopes, magic squares and a conjecture of Stanley*, Journal für die reine und angewandte Mathematik **583** (2005), 163–174.
25. C.A. Athanasiadis, *h^* -Vectors, Eulerian polynomials and stable polytopes of graphs*, in *Stanley Festschrift* (B.E. Sagan, ed.), Electronic Journal of Combinatorics **11** (2004), no. 2, Research Paper 6, 13pp (electronic).
26. C.A. Athanasiadis, T. Brady and C. Watt, *Shellability of noncrossing partition lattices*, Proceedings of the American Mathematical Society **135** (2007), no. 4, 939–949.
27. C.A. Athanasiadis and E. Tzanaki, *On the enumeration of positive cells in generalized cluster complexes and Catalan hyperplane arrangements*, Journal of Algebraic Combinatorics **23** (2006), no. 4, 355–375.
28. C.A. Athanasiadis, *On some enumerative aspects of generalized associahedra*, European Journal of Combinatorics **28** (2007), no. 4, 1208–1215.
29. C.A. Athanasiadis, T. Brady, J. McCammond and C. Watt, *h -Vectors of generalized associahedra and noncrossing partitions*, International Mathematics Research Notices **vol. 2006**, Article 69705, 28pp.
30. C.A. Athanasiadis and E. Tzanaki, *Shellability and higher Cohen-Macaulay connectivity of generalized cluster complexes*, Israel Journal of Mathematics **167** (2008), no. 1, 177–191.
31. C.A. Athanasiadis, *A combinatorial reciprocity theorem for hyperplane arrangements*, Canadian Mathematical Bulletin **53** (2010), no. 1, 3–10.
32. C.A. Athanasiadis and M. Kallipoliti, *The absolute order on the symmetric group, constructible partially ordered sets and Cohen-Macaulay complexes*, Journal of Combinatorial Theory Series A **115** (2008), no. 7, 1286–1295.
33. C.A. Athanasiadis, *On the graph connectivity of skeleta of convex polytopes*, in *Victor Klee Festschrift* (P. Gritzmann, B. Sturmfels and G.M. Ziegler, eds.), Discrete and Computational Geometry **42** (2009), no. 2, 155–165.
34. C.A. Athanasiadis, *Some combinatorial properties of flag simplicial pseudomanifolds and spheres*, Arkiv för matematik **49** (2011), no. 1, 17–29.
35. C.A. Athanasiadis and P. Diaconis, *Functions of random walks on hyperplane arrangements*, Advances in Applied Mathematics **45** (2010), no. 3, 410–437.

36. C.A. Athanasiadis and V. Welker, *Buchsbaum* complexes*, *Mathematische Zeitschrift* **272** (2012), no. 1, 131–149.
37. C.A. Athanasiadis, *On the flag f -vector of a graded lattice with nontrivial homology*, *Order* **30** (2013), no. 1, 249–254.
38. C.A. Athanasiadis, *Cubical subdivisions and local h -vectors*, *Annals of Combinatorics* **16** (2012), no. 3, 421–448.
39. C.A. Athanasiadis, *On the Möbius function of a lower Eulerian Cohen-Macaulay poset*, *Journal of Algebraic Combinatorics* **35** (2012), no. 3, 373–388.
40. C.A. Athanasiadis and C. Savvidou, *The local h -vector of the cluster subdivision of a simplex*, *Séminaire Lotharingien de Combinatoire* **66** (2012), Article B66c, 21pp (electronic).
41. C.A. Athanasiadis, *Flag subdivisions and γ -vectors*, *Pacific Journal of Mathematics* **259** (2012), no. 2, 257–278.
42. C.A. Athanasiadis and Y. Roichman, *The absolute order of a permutation representation of a Coxeter group*, *Journal of Algebraic Combinatorics* **39** (2014), no. 1, 75–98.
43. C.A. Athanasiadis, *Edgewise subdivisions, local h -polynomials and excedances in the wreath product $\mathbb{Z}_r \wr \mathfrak{S}_n$* , *SIAM Journal on Discrete Mathematics* **28** (2014), no. 3, 1479–1492.
44. C.A. Athanasiadis, *A survey of subdivisions and local h -vectors*, in *The Mathematical Legacy of Richard P. Stanley* (P. Hersh, T. Lam, P. Pylyavskyy, V. Reiner, eds.), Amer. Math. Society, Providence, RI, 2016, pp. 39–51.
45. C.A. Athanasiadis, *Power sum expansion of chromatic quasisymmetric functions*, *Electronic Journal of Combinatorics* **22** (2015), no. 2, Research Paper 2.7, 9pp (electronic).
46. R.M. Adin, C.A. Athanasiadis, S. Elizalde and Y. Roichman, *Character formulas and descents for the hyperoctahedral group*, *Advances in Applied Mathematics* **87** (2017), 128–169.
47. C.A. Athanasiadis and M. Kallipoliti, *Edgewise Cohen-Macaulay connectivity of partially ordered sets*, *Mathematica Scandinavica* **122** (2018), no. 1, 5–17.
48. C.A. Athanasiadis, *The symmetric group action on rank-selected posets of injective words*, *Order* **35** (2018), no. 1, 47–56.
49. C.A. Athanasiadis, *The local h -polynomial of the edgewise subdivision of the simplex*, *Bulletin of the Hellenic Mathematical Society (New Series)* **60** (2016), 11–19.
50. C.A. Athanasiadis, *Gamma-positivity in combinatorics and geometry*, [arXiv:1711.05983](https://arxiv.org/abs/1711.05983).
51. C.A. Athanasiadis, *Some applications of Rees products of posets to equivariant gamma-positivity*, [arXiv:1707.08297](https://arxiv.org/abs/1707.08297).

Thesis

- C.A. Athanasiadis, *Algebraic combinatorics of graph spectra, subspace arrangements and Tutte polynomials*, Ph.D thesis, MIT, 1996, 145 pages. (Thesis Adviser: Prof. R.P. Stanley.)

Volumes Edited

- *Algebraic and Geometric Combinatorics* (C.A. Athanasiadis, V.V. Batyrev, D.I. Dais, M. Henk and F. Santos, eds.), *Proceedings of a Euroconference in Mathematics, August 2005, Anogia, Crete, Greece*, Contemporary Mathematics **423**, American Mathematical Society, Providence, RI, 2007.

STUDENTS

Ph.D Level

- Eleni Tzanaki
Defended: March 2007 (University of Crete)
Thesis title: *Combinatorics of generalized cluster complexes and hyperplane arrangements*.
- Myrto Kallipoliti
Defended: June 2010 (University of Athens)
Thesis title: *Combinatorics and topology of the absolute order on a finite Coxeter group*.
- Christina Savvidou
Defended: June 2013 (University of Athens)
Thesis title: *Barycentric subdivisions, clusters and permutation enumeration*.

Masters Level

- Christos Saroglou
Defended: September 2005 (University of Crete)
Thesis title: *P-partitions, Eulerian polynomials and equatorial spheres*.
- Christina Savvidou
Defended: May 2008 (University of Athens)
Thesis title: *The characteristic polynomial of a hyperplane arrangement*.
- Vassiliki Bora
Defended: July 2008 (University of Athens)
Thesis title: *The Robinson-Schensted-Knuth correspondence and its applications*.
- Vassilis-Dionyssis Moustakas
Defended: June 2017 (University of Athens)
Thesis title: *The Eulerian distribution on the involutions of the hyperoctahedral group*.

- Stavros Mavrothalassitis
Defended: June 2018 (University of Athens)
Thesis title: *Permutation enumeration, symmetric functions and the Gessel-Reutenauer Theorem.*

TEACHING EXPERIENCE

Courses taught at MIT

- 18.085: Mathematical Methods for Engineers (Summer 1995).

Courses taught at UPenn

- Math 140: Calculus I for the Natural Sciences (Fall 1997).
- Math 151: Calculus II for the Social and Biological Sciences (Spring 1998).
- Math 580: Combinatorial Analysis and Graph Theory (Fall 1998).
- Math 312: Linear Algebra (Spring 1999).

Courses taught at University of Crete

- Math 109: Introduction to Analysis II (Fall 2002 and Spring 2005).
- Phys 113: Mathematics for Physics Majors (Fall 2003).
- Math 202: Number Theory (Spring 2004).
- Math 224: Topology (Fall 2002).
- Math 227: Field Theory (Spring 2003).
- Math 251: Discrete Mathematics (Fall 2004).
- Math 252: Formal Languages and Machines (Fall 2004).
- Math Γ 31: Discrete Geometry (Spring 2004, Graduate).

Courses taught at University of Athens

- 121: Linear Algebra I (Fall 2010, 2011, 2014 and 2015).
- 221: Linear Algebra II (Spring 2007 and 2008).
- 252: Discrete Mathematics (Spring 2007, 2010, 2013, 2015, 2017 and 2018).
- 421: Basic Algebra (Fall 2008, 2009, 2012, 2013, 2016 and 2017).
- 536: Introduction to the Theory of Ordered Sets (Spring 2006).
- 734: Algebraic Combinatorics (Spring 2008, 2009, 2011, 2014 and 2016).
- 821: Galois Theory (Spring 2011).

- 832: Algebraic Topology (Spring 2015).
- ΘM.28: Representation Theory (Spring 2006, 2014 and 2017, Fall 2009, Graduate).
- ΘM.31: Combinatorial Theory (Fall 2006 and 2008, Spring 2013, 2016 and 2018, Graduate).
- ΘM.32: Geometric Combinatorics (Fall 2007, Graduate).

PROFESSIONAL EXPERIENCE

- Member of the Program Committee for the international conferences:
 - *Formal Power Series and Algebraic Combinatorics*, Taormina, Sicily, June 2005.
 - *Workshop on Geometric and Topological Combinatorics* (Satellite Conference of the ICM-06), Alcalá, Spain, September 2006.
 - *Formal Power Series and Algebraic Combinatorics*, Chicago, USA, June 2014.
 - *GASCom on Random Generation of Combinatorial Structures*, Athens, June 2018.
- Opponent for the Doctoral Dissertation:
 - *Connectivity and Embeddability of Buildings and Manifolds*, by Kathrin Vorwerk, KTH, 2014.
- Referee for the following international journals: *Advances in Mathematics*, *Advances in Applied Mathematics*, *Annals of Combinatorics*, *Ars Combinatoria*, *Bulletin of the Australian Mathematical Society*, *Bulletin of the Hellenic Mathematical Society*, *Combinatorica*, *Canadian Mathematical Bulletin*, *Compositio Mathematica*, *Contributions to Discrete Mathematics*, *Discrete Applied Mathematics*, *Discrete & Computational Geometry*, *Discrete Mathematics*, *Electronic J. Combinatorics*, *European J. Combinatorics*, *J. Algebraic Combinatorics*, *J. Combinatorial Theory Series A*, *J. Combinatorics*, *J. European Mathematical Society*, *J. London Mathematical Society*, *Proceedings of the American Mathematical Society*, *Seminaire Lotharingien de Combinatoire*, *SIAM J. Discrete Mathematics*, *Tohoku Mathematical Journal*, *Transactions of the American Mathematical Society*.

OTHER EXPERIENCE

- Military service, Greece, September 2000–March 2002.
Specialty: Military English Interpreter.