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Dan Abramovich

- **Institutional address:** Department of Mathematics, Boston University, 111 Cummington Street, Boston Ma. 02215. Tel: (617) 353-9547. Home: (617) 868-7931. E-mail: `abrmovic@math.bu.edu` WWW: `http://math.bu.edu/people/abrmovic`

- **Born** March 12, 1963 in Haifa, Israel. **Citizenship:** Israel. **Residence:** U.S.A.

- **Education:**

  Harvard University: Ph.D 1991 under the supervision of Professor Joe Harris.

  Tel Aviv University: B.Sc. *summa cum laude* 1987. Cited for excellence on the Dean's list 1985, 1986. Study awards 1984-1987.

- **Research interests:** Algebraic and Arithmetic Geometry: studied geometric and arithmetic problems on subvarieties of abelian varieties; the problem of bounding torsion on elliptic curves; moduli spaces of vector bundles on curves; uniformity conjectures for rational and integral points; the fibered power conjecture on families of varieties of general type; resolution of singularities; stable maps; semistable reduction; birational geometry.

- **Employment:**

  Boston University: Associate Professor 1999 -present, Assistant Professor 1994-9. NSF grants 1995-present.

  Max Planck Institue für Mathematik, Bonn: Visitor, April-June 1999.

  Centre Emile Borel: Visiting Professor, February 1999.

  Institut des Hautes Etudes Scientifiques: Visiting Professor, January-March 1999.

  Mathematical Sciences Research Institute: Visiting Member, May-June 1998.

  Université Paris VI: Visiting Professor, June 1994.

  Massachusetts Institute of Technology: C. L. E. Moore instructor in puremathematics, 1991 - 1994. NSF grant 1992-1994.

  Mathematical Sciences Research Institute: Postdoctoral fellow, spring 1993.

- **Fellowships:**

  Alfred P. Sloan Doctoral Dissertation Fellowship, academic year 1990-1991.

  Alfred P. Sloan Research Fellowship for 1996 - 1998.

- **Ph.D. students:** Patricia Pacelli, Ph.D. May 1996. J.-H. Wang, Ph.D. MIT May 1997. Kalle Karu, PhD May 1999. Gabrielle La Nave (Brandeis), current.

- **Editor,** International Mathematical Research Notices, 1999-present.

- **Referee/reviewer for:** Inventionnes Math.; Jour. of the A.M.S.; Compositio Math.; Duke Math. J.; Math. Res. Letters; AMS Proceedings; AMS Transactions; Bulletin Can. Math. Soc.; American Math. Journal; National Science Foundation; National Security Agency; Mathematical Reviews.

- **Publications:**

1. With Joe Harris, *Curves and abelian varieties on $W_d(C)$*, Comp. Math. 78, p. 227-238, 1991.
2. *Subvarieties of Abelian Varieties and of Jacobians of Curves*, Ph.D. Thesis, Harvard U., 1991.
3. With L.-Y. Fong, J. Kollár, K. Matsuki and J. Mckernan: *Abundance for threefolds.* In: *Flips and Abundance on Algebraic Threefolds,* J. Kollár, Astérisque 211, 1992.
4. With J.-F. Burnol and J. Kramer: Lecture notes for C. Soulé's Book *Lectures on Arakelov Geometry.* Cambridge University Press, 1992.
5. With J. F. Voloch, *Toward a proof of the Mordell Lang conjecture in characteristic p*, IMRN, June 1992.
6. *Subvarieties of semiabelian varieties*, Comp. Math. 90, 1994, p 37-52
7. *Formal finiteness and the torsion conjecture on elliptic curves*, in *Columbia University Number Theory Seminar,* Astérisque 228 (1995).
8. *Uniformité des points rationnels des courbes algébriques sur toutes les extensions quadratiques et cubiques*, C.R. Acad. Sc. Paris, t. 321, Sér. I, p. 755-758, 1995.
9. *Uniformity of stably integral points on elliptic curves*, Inventionnes Math. 127, 307-317 (1997).
10. With J. F. Voloch, *Lang's conjectures, fibered powers, and uniformity*, New York J. of Math. II, p 20-34, 1996. `http://nyjm.albany.edu:8000/j/v2/Abramovich-Voloch.html`
11. *A high fibered power of a family of varieties of general type dominates a variety of general type*, Inventionnes Math. 128, 481-494 (1997).
12. *Lang maps and Harris's conjecture*, Israel J. of Math. 101 (1997), 85-91.
13. With A. J. de Jong, *Smoothness, Semistability, and Toroidal Geometry,* J. Alg. Geom. 6 (1997), 789-801.
14. With J. Wang, *Equivariant resolution of singularities in characteristic 0*, Math. Res. Letters 4, 427-433 (1997).
15. *A linear lower bound on the gonality of modular curves,* IMRN 1996, no 20, 1005-1011.
16. With F. Oort, *Alterations and resolution of singularities*, In: Resolution of Singularities. A research textbook in tribute to Oscar Zariski. Eds. H. Hauser, J. Lipman, F. Oort, A. Quirós. Progress in Math. vol 181, Birkhäuser 2000.
17. With K. Karu, *Weak semistable reduction in characteristic 0*, Invent. math. 139 (2000) 2, 241-273.
18. With A. Vistoli, *Complete moduli for fibered surfaces*,in *Recent Progress in Intersection Theory*, Proceedings of the *International Conference on Intersection Theory*, Bologna, December 15–20, 1997, G. Ellingsrud, W. Fulton, A. Vistoli (eds.), Birkhäuser, 2000.
19. With K. Matsuki and S. Rashid, *A note on the factorization theorem,* Tohoku Math. J. (2) 51 (1999), no. 4, 489–537.

    In press:

20. With K. Matsuki, *Uniformity of stably integral points on abelian varieties*, Israel Journal of Matematics, to appear.
21. With A. Bertram, *The formula $12 = 10 + 2 \times 1$ and its generalizations (Counting rational curves on Hirzebruch surfaces)*, in *Proceedings of the AMS Lowell meeting*, to appear.
22. With F. Oort, *Stable maps and Hurwitz schemes in mixed characteristic*, in *Proceedings of the AMS Lowell meeting*, to appear.

    In progress:

23. With A. Vistoli, *Complete moduli for families over semistable curves*, preprint.
24. With A. Vistoli, *compactifying the space of stable maps*, preprint.

25. With K. Karu, K. Matsuki and W. Włodarczyk, *Torification and factorization of birational maps,* preprint.
26. With T. Jarvis, *Roots of invertible sheaves on twisted curves,* in preparation.
27. With A. Corti and A. Vistoli, *Twisted covers and level structures*, in preparation.
28. With T Graber, *Gromov–Witten invariants of orbifolds and enumerative geometry*, in preparation.

- **Lectures:**
  - **Invited lecture series:**
    1. **Poincaré Lecture Series,** The Fields Institute for Research in Mathematical Sciences, Toronto.
       Title: Resolution of Singularities and Semistable Reduction in Characteristic 0.
       Dates: February 11 and 12, 1997
    2. **Working Week on Resolution of Singularities,** Obergurgl, Tirol, Austria.
       Title: Alterations and Resolution of Singularities.
       Dates: September 7-14, 1997
    3. **Trimester on Diophantine Equations** at Centre Émile Borel, Paris.
       Title: The conjectures of Lang and Vojta.
       Dates: February 9-25, 1999.
  - **Conference and Workshop Talks**
    1. JAMI conference on higher dimensional algebraic Geometry, Baltimore 1991. *Subvarieties of Abelian Varieties.*
    2. Arithmetic Algebraic Geometry, C.I.M.E., Trento, Italy, June 24-July 2, 1991. *Subvarieties of Abelian Varieties and of Jacobians.*
    3. Higher Dimensional Algebraic Geometry, Salt Lake City, Utah, August 1991. *Abundance for Threefolds I*
    4. Journées de Géometrie Algébrique d'Orsay, Juillet 1992. *Towards a proof of the Mordell-Lang conjecture in characteristic p.*
    5. Workshop on Abelian Varieties and curves, MSRI, fall 1992. *Points of low degree.*
    6. Conference in Honor of F. Hirzebruch, Tel Aviv, Israel, May 2-7, 1993. *Rational torsion on Elliptic Curves.*
    7. Géometrie Arithmétique, Luminy, France, May 1994. *Uniformity of Stably Integral Points on Elliptic Curves.*
    8. Higher Dimensional Algebraic Geometry, Salt Lake City, Utah, summer 1994. *Rational torsion on elliptic curves: recent work of Kamienny and Merel.*
    9. Canadian Number Theory Association Meeting, Halifax, summer 1994. *Rational torsion on Elliptic Curves: recent work of Kamienny and Merel.*
    10. AMS meeting, Chicago, IL, special session on arithmetic geometry, March 25, 1995. *The work of Caporaso, Harris, and Mazur and its refinements.*
    11. AMS Summer Institute in Algebraic Geometry, Santa Cruz, CA, July 1995. *Uniform boundedness for rational points.*
    12. AMS meeting, Kent, OH, special session on arithmetic geometry, fall 1995. *Uniform boundedness of rational points on curves.*
    13. Joint Annual Meeting, AMS special session on Diophantine Equations, Orlando, FL., Jan 1996. *Lang's Conjectures and Uniformity.*
    14. AMS-BeNeLux joint meeting, Antwerp, Belgium, May 22-23, 1996. *Fibrations by Nodal Curves and Applications.*
    15. EUROPROJ annual meeting, Alghero, Italy, June 24-29, 1997. *Semistable Reduction in Characteristic 0.*

16. AMS meeting, Montreal, CA, special session on Arithmetic geometry, Sept 22-24, 1997. *Number Theory, Algebraic Geometry, and Inspiration.*
17. Newton Institute workshop on Rational Points, April 3, 1998. *Lang's conjectures and uniformity*
18. MSRI workshop on Model Theory and Diophantine Geometry, June 1998. *Lang's conjectures and uniformity.*
19. AMS conference on Quantum Cohomology, June 28 - July 2, 1998. *Compactifying the space of stable maps.*
20. Algebraic and Arithmetic Geometry, Essen, Germany, August 10-14, 1998. *Semistable reduction.*
21. Moduli of Abelian Verities, Texel, The Netherlands, April 25-30, 1999. *Why stacks?*
22. Model Theory and Algebraic Geometry, LMS-BMS joint session, May 14-15, 1999. *Families, moduli, and stacks.*
23. Mathematische Arbeitstagung, Bonn, Germany, June 18-24, 1999. *Factorization of birational maps.*
24. EUROPROJ annual meeting, Ma'agan, Israel, September 4-9, 1999. *Factorization of birational maps.*
25. Classical Algebraic Geometry, Oberwolfach, Germany, June 18-24, 2000. *Factorization of birational maps.*

– **Seminar and colloquium talks.**

1. Harvard University Algebraic Geometry Seminar, Spring 1990. *Points of degree d on curves.*
2. Algebra seminar, Technion, Israel, June 1991. *Subvarieties of Abelian Varieties.*
3. Columbia University Mathematics Colloquium, Sept. 25, 1991. *Points of low degree.*
4. Harvard University Algebraic Geometry Seminar, Fall 1991. *Subvarieties of abelian varieties.*
5. MIT Algebraic Geometry Seminar, Fall 1991. *Subvarieties of Semiabelian Varieties*
6. MIT Algebraic Geometry Seminar, March 6, 1992. *The Mordell–Lang conjecture in characteristic p.*
7. Brown University Algebra Seminar, November 23, 1992. *The Mordell-Lang conjcture in characteristic p.*
8. Brandeis University Fellowship of the Ring seminar, 1992. *Toward a proof of the Mordell - Lang Conjecture in characteristic p.*
9. University of Texas Number Theory Seminar, October 14, 1992. *Points of low degree.*
10. Harvard University Algebraic Geometry Seminar, November 17, 1992. *Toward a proof of the Mordell - Lang Conjecture in characteristic p.*
11. Invited lecture in "rational points" course, Harvard University, April 28, 1993. *Formal finiteness and the uniform boundedness conjecture.*
12. MSRI Algebraic Geometry Seminar, February 24, 1993. *The Mordell - Lang Conjecture in characteristic p.*
13. University of Southern California Algebra Seminar, January 22, 1993. *Formal finiteness and the torsion conjecture on elliptic curves.*
14. University of California, Berkeley Number Theory Seminar, Jan 27, 1993. *Formal finiteness and torsion points on elliptic curves.*
15. MIT Algebraic Geometry Seminar, September 24, 1993. *Torsion points on elliptic curves over number fields.*
16. Harvard University Algebraic Geometry Seminar, Fall 1993. *Hilbert compactification of the moduli of vector bundles on curves.*
17. Brown University Colloquium, Nov. 1993 *Parameter spaces, moduli spaces and compactifications.*
18. Harvard University Number Theory Seminar, Spring 1994. *Uniformity of stably integral points on elliptic curves.*
19. University of Chicago Number Theory Seminar, Jan 12, 1994. *Bounding torsion on elliptic curves.*
20. University of Chicago Algebraic Geometry Seminar, Jan 13, 1994. *A compactification of moduli spaces of vector bundles over curves.*
21. Five College Number Theory Seminar, Amherst, March 29, 1994 *Bounding rational torsion on elliptic curves - recent work of Kamienny and of Merel.*

22. University of Michigan Mathematics Colloquium, Spring 1994. *Parameter spaces, moduli spaces and compactifications*
23. Michigan State University Mathematics Colloquium, Spring 1994. *Parameter spaces, moduli spaces and compactifications.*
24. Indiana University Mathematics Colloquium, Spring 1994. *Parameter spaces, moduli spaces and compactifications.*
25. Purdue University Mathematics Colloquium, Spring 1994. *Parameter spaces, moduli spaces and compactifications.*
26. University of Missouri Mathematics Colloquium, Spring 1994. *Parameter spaces, moduli spaces and compactifications.*
27. Boston University Mathematics Colloquium, Spring 1994. *Parameter spaces, moduli spaces and compactifications.*
28. University of Essen, Germany, Algebraic Geometry Seminar, June 1994. *Uniformity of points on curves: the work of Caporaso, Harris and Mazur and its extensions.*
29. Université de Paris VI, Number Theory Seminar, June 1994. *Uniformity of points on curves: the work of Caporaso, Harris and Mazur and its extensions.*
30. Harvard University Algebraic Geometry Seminar, Fall 1994. *Uniformity of rational points over quadratic fields.*
31. Hebrew University Number Theory Seminar, Jerusalem, December 1994. *Uniformity of stably integral points on elliptic curves.*
32. Columbia University Number Theory Seminar, February 20, 1995. *Uniformity of points on curves: the work of Caporaso, Harris and Mazur and its extensions.*
33. University of Michigan Algebraic Geometry Seminar, march 27, 1995 *Lang's conjecture, fibered powers, and uniformity.*
34. University of Michigan Number Theory Seminar, March 27, 1995 *Rational Torsion on Elliptic Curves: Recent work of Kamienny and Merel.*
35. MIT Algebraic Geometry Seminar, April 28, 1995. *Rational torsion on elliptic curves - recent work of Kamienny and Merel.*
36. University of Virginia Algebraic geometry Seminar, Spring 1995. *Uniformity of points on curves.*
37. University of Utah Algebraic Geometry Seminar, March 1996 *Fibrations by nodal curves and an application.*
38. Oklahoma State University Algebraic Geometry Seminar, April 16, 1996. *Fibrations by nodal curves and applications.*
39. MIT Algebraic Geometry Seminar, April 26, 1996. *Fibrations by nodal curves and applications.*
40. Columbia University Algebraic Geometry Seminar, April 1996. *Resolution of singularities in characteristic 0.*
41. Université de Paris VI, Number Theory Seminar, May 1996. *Fibered powers.*
42. Université d'Orsay SAGA, June 1996 *Resolution of singularities in characteristic 0.*
43. Algebra seminar, Technion, Israel, June 1996. *Fibrations by nodal curves and applications*
44. Hebrew University Number Theory Seminar, Jerusalem, June 1996. *Fibered powers and uniformity.*
45. Hebrew University Algebraic Geometry Seminar, Jerusalem, June 1996. *Resolution of Singularities in Characteristic 0.*
46. Hebrew University Mathematics Colloquium, Jerusalem, June 1996. *Uniformity of rational points.*
47. Tel Aviv University Algebraic Geometry Seminar, June 1996. *Resolution of Singularities in Characteristic 0.*
48. Weitzman Institute Algebra Seminar, Rehovot, Israel, June 1996. *Resolution of singularities in characteristic 0.*
49. MIT Algebraic Geometry Seminar, October 4, 1996. *Fibered powers.*
50. Purdue University Algebraic Geometry Seminar, Oct. 18-19, 1996 *Resolution of singularities in characteristic 0, parts I, II.*

51. University of Arizona Mathematics Colloquium, Dec. 12, 1996. *Resolution of singularities.*
52. Columbia University Number Theory Seminar, February 3, 1997 *Fibered powers.*
53. UCLA Algebraic Geometry Seminar, April 1997. *Resolution of Singularities.*
54. UCLA Algebraic Geometry Seminar, April 1997. *Fibered powers.*
55. McGill University Algebraic Geometry Seminar, March 1997. *Resolution of Singularities and semistable reduction.*
56. Boston College Mathematics Colloquium, April 30, 1997. *Resolution of Singularities vs. semistable reduction.*
57. University of Chicago Algebraic Geometry Seminar, June 1997. *Complete moduli for fibered surfaces.*
58. University of New Hampshire Mathematics Colloquium, September 23, 1997. *Resolution of Singularities vs. Semistable Reduction.*
59. MIT Algebraic Geometry Seminar, Fall 1997. *Stable maps and orbifolds.*
60. Geometry and Topology seminar, Haifa University, Israel, December 18, 1997. *Semistable reduction in characteristic 0.*
61. Hebrew University Algebraic Geometry Seminar, Jerusalem, December 25, 1997. *Semistable reduction in characteristic 0.*
62. Bar Ilan University Algebraic Geometry Seminar, Ramat Gan, Israel, December 24, 1997. *Complete moduli for fibered surfaces.*
63. University of Georgia Mathematics Colloquium, February 19, 1998. *Resolution of singularities vs. semistable reduction.*
64. University of Georgia Algebraic Geometry Seminar, February 20, 1998. *Compactifying the space of stable maps.*
65. Universitá di Bologna Algebraic Geometry Seminar, March 10, 1998. *Semistable reduction in characteristic 0.*
66. Five Colleges Algebraic Geometry Seminar, April 17, 1998. *Semistable reduction in characteristic 0.*
67. MSRI Model Theory of Fields Seminar, May 19, 1998. *Resolution of singularities and semistable reduction.*
68. University of Oxford Algebraic Geometry Seminar, January 29, 1999. *Compactifying the space of stable maps.*
69. IHES working group on Algebraic Geometry, February 18, 1999. *Semistable reduction*
70. Université de Paris Sud Algebraic Geometry and Arithmetic Seminar. *Compactifying the space of stable maps.*
71. Universitá di Bologna Algebraic Geometry Seminar, May 6, 1999. *Factorization of birational maps.*
72. University of Nice Algebraic Geometrty Seminar, may 27, 1999. *Semistable reduction.*
73. University of Essen Algebraic Geometry Seminar, June 10, 1999. *Compactifying the space of stable maps.*
74. MPI Oberseminar, June 17, 1999. *Resolution vs. semistable reduction.*
75. Fellowship of the Ring seminar, Brandeis, October 6, 1999. *Factorization of birational maps.*
76. Harvard-MIT Albegraic Geometry Seminar, October 12, 1999. *The unreasonable effectiveness of toric geometry.*
77. G-A-S-C seminar, Northeastern University, October 18, 1999. *Factorization of birational maps.*
78. Toronto Algebraic Geometry Seminar, October 25, 1999. *Factorization of birational maps.*
79. Columbia University Algebraic Geometry Seminar, November 5, 1999. *Factorization of birational maps.*
80. Quebec-Vermont Number Theory Seminar, February 3, 2000. *Factorization of birational maps.*
81. University of Chicago Algebraic Geometry Seminar, May 24, 2000. *Factorization of birational maps.*