CURRICULUM VITAE

October, 2022

Robert K. Lazarsfeld

Education

B.A., Harvard College, 1975
Ph.D., Brown University, 1980

Academic Employment

1980-1983: Benjamin Peirce Instructor, Harvard University
1981-1982: Member, Institute for Advanced Study
1983-1984: Assistant Professor, UCLA
1984-1987: Associate Professor, UCLA
1987-1998: Professor, UCLA
1997-2013: Professor, University of Michigan
2007-2013: Raymond L. Wilder Collegiate Professor, University of Michigan
2013-2015.: Professor, Stony Brook University
2015-pres.: Distinguished Professor, Stony Brook University
2016-2019.: Math Department Chair, Stony Brook University

Honors and Awards

1981-1982: Amer. Math. Soc. Postdoctoral Fellowship
1984-1987: Sloan Fellowship
1985-1990: N.S.F. Presidential Young Investigator
1990: International Congress of Mathematicians, Kyoto (invited lecture)
1998-1999: Guggenheim Fellowship
2005: Amer. Math. Soc. Colloquium Lecturer
2006: Elected to American Academy of Arts and Sciences
2008: Clay Senior Scholar at 2008 Park City Math Institute
2012: Fellow of the Amer. Math. Soc.
2015: Leroy P. Steele Prize for Mathematical Exposition (for the book [51]).

Editorial

1989-1995: Associate Editor for Research Announcements, BAMS
1995–2005: Editor, Electronic Research Announcements of the AMS
1996–2002: Associate Editor, Journal of the Amer. Math. Soc.

1998–2004: Editor, Journal of Algebraic Geometry
2002–2007: Editor, Journal of the Amer. Math. Soc.
2007–2009: Managing Editor, Journal of the Amer. Math. Soc.
2012–2013: Managing Editor, Michigan Math. Journal
2020–pres.: Editor, Communications of the Amer. Math. Soc.

Selected lectures and lecture series

1982: CIME Seminar (several lectures)
1982: DMV (German Math. Society) Seminar (several lectures)
1988: Craaford award conference
1993: "Summer school" at the Universität Bayreuth (4 lectures)
1993: Park City Math Institute (3 lectures)
1994: DMV (German Math. Society) Seminar (4 lectures)
1997: Trento school on higher-dimensional geometry (5 lectures)
1998: Rademacher Lectures, University of Pennsylvania (4 lectures)
2002: Myhill Lectures, SUNY Buffalo (3 lectures)
2002: MSRI Introductory Program in Commutative Algebra (3 lectures)
2003: University of Utah, Distingushed Lecture Series (3 lectures)
2005: AMS Colloquium Lectures (3 lectures)
2007: Summer School in complex geometry at Grenoble (10 hours of lectures)
2008: Park City Math Institute lectures on multiplier ideals (5 lectures)
2013: GAeL (4 lectures)
2014: Felix Klein Lectures, Hausdorff Institute, Bonn (5 lectures)
2014: Milan School on Asymptotic Methods in Complex and Algebraic Geometry (5 lectures)
2015: Hayden-Howard Lecture, University of Kentucky
2015: ELGA school on algebraic geometry (5 lectures)
2016: Mathematics Department Distinguished Lectures, UIC (3 lectures)
2017: Spring Lectures, University of Arkansas (4 lectures)
2022: Distinguished Lectures, University of Wisconsin (3 lectures).

Other Professional Service

1991: External visiting committee, U.C. Riverside
1994–1997: Member-at-Large of the Council of the AMS
1995: Chairman, Organizing Committee, AMS Summer Institute in Algebraic Geometry
1997: Committee to select ICM speakers in algebraic geometry
1998: N.S.F. Committee of Visitors
2000: External visiting committee, U.C. Santa Barbara
2003: External visiting committee, Purdue University
2004: External visiting committee, Institut Mathematiques de Jussieu
2004, 2005: Committee to select receipients of AMS Centennial Fellowship

2005–2008: Scientific Advisory Board, Banff International Research Station
2008: External visiting committee, Duke University
2009: External visiting committee, University of Maryland
2014–2019: Board of Trustees, Amer. Math. Soc. .
2014: External visiting committee, University of Illinois
2014: External visiting committee, University of Utah
2016: Chair of committee to select speakers for algebraic geometry section of 2018 ICM
2017: Chair of committee to select winner of 2018 Cole Prize in Algebra.
2017–2019: Co-chair of AMS Next Generation Campaign.

Ph.D. Students (and year finishing)

At UCLA: Aaron Bertram (1989), David Butler (1991), Guiseppe Pareschi (1991), Roberto Paoletti (1993), Guillermo Fernandez del Busto (1994), Vladimir Masek (1994), Flavio Angelini (1995), Alfred Chen (1997), Christopher Hacon (1998)

At Michigan: Mihnea Popa (2001), Jason Howald (2001), Jessica Sidman (2002 – coadvised with Harm Derksen), Alex Küronya (2004), Alex Wolfe (2005), Zach Teitler (2005), Kyungyong Lee (2008), Oscar Felgueras (2008), Shin-Yao Jow (2009), Victor Lozovanu (2010), Eugene Eisenstein (2011), Mihai Fulger (2012), Xin Zhou (2014), Brooke Ullery (2015, co-advised with Karen Smith)

At Stony Brook: David Stapleton (2017), John Sheridan (2020), Ruijie Yang (2021, co-advised with Christian Schnell), Nathan Chen (2021).

Current students: Karina Cho, Yu (Alicia) Xiao, Giovanni Passeri

Publications:

1. (with T. Gaffney) *On the ramification of branched coverings of* $\mathbf{P}^n$, Invent. Math. **59** (1980), pp. 53-58.

2. *A Barth-type theorem for branched coverings of projective space*, Math. Ann. **249** (1980), pp. 153-162.

3. (with W. Fulton) *Connectivity and its applications in algebraic geometry*, in Proceedings of the Midwest Algebraic Geometry Conference, Lect. Notes in Math. **862** (1981), pp. 26-92.

4. *Excess intersection of divisors*, Compositio Math. **43** (1981), pp. 281-296.

5. (with W. Fulton) *On the connectedness of degeneracy loci and special divisors*, Acta Math. **146** (1981), pp. 271-283.

6. (with W. Fulton) *Positivity and excess intersection*, in Enumerative Geometry and Classical Algebraic Geometry, Progress in Math. **24** (1982), pp. 97-105.

7. (with W. Fulton) *Positive polynomials for ample vector bundles*, Ann. of Math. **118** (1983), pp. 35-60.

8. (with L. Gruson and C. Peskine) *On a theorem of Castelnuovo and the equations defining space curves*, Invent. Math. **72** (1983), pp. 491-506.

9. (with P. Rao) *Linkage of general curves of large degree*, in Proceedings of the Ravello conference in algebraic geometry, Lect. Notes in Math. **997** (1983), pp. 491-506.

10. (with A. Van de Ven) *Recent work of F. L. Zak*, in Proceedings of the 1982 DMV seminar, Birkhauser, 1984.

11. (with W. Fulton and J. Harris), *Excess linear series on an algebraic curve*, Proc. AMS **92** (1984), pp. 320-322.

12. *Some applications of the theory of positive vector bundles*, in Proceedings of the 1983 CIME conference on complete intersections, Lect. Notes in Math. **1092** (1984), pp. 28-61.

13. (with C. Ciliberto) *On the uniqueness of certain linear series on some classes of curves*, in Proceedings of the 1983 CIME conference on complete intersections, Lect. Notes in Math. **1092** (1984), pp. 198-213.

14. (with M. Green) *On the projective normality of complete linear series on an algebraic curve*, Invent. Math. **83** (1986), pp. 73-90.

15. (with M. Green) *A simple proof of Petri's theorem on canonical curves*, in *Geometry Today*, Progress in Math. **60**, (1985), pp. 129-142.

16. *Brill-Noether-Petri without degenerations*, J. Diff. Geom. **23** (1986), p. 299-307.

17. *A sharp Castelnuvo bound for smooth surfaces*, Duke Math. J. **55** (1987), p. 423-429.

18. (with M. Green) *Deformation theory, generic vanishing theorems, and some conjectures of Enriques, Catanese and Beauville*, Invent. Math. **90** (1987), pp. 389-407.

19. (with M. Green) *Special divisors on curves on a K3 surface*, Invent. Math. **89** (1987), pp. 357-370.

20. (with M. Green) *A deformation theory for the cohomology of analytic vector bundles on Kähler manifolds, with applications*, in S-T Yau (ed.) String Theory, World Scientific Press (1987).

21. (with M. Green) *Some results on the syzygies of finite sets and algebraic curves*, Compositio Math. **67** (1988), pp. 301-314.

22. *A sampling of vector bundle techniques in the study of linear series*, in M. Cornalba et. al. (eds.), *Lectures on Riemann Surfaces*, pp. 500-560 (1989).

23. (with M. Green) *Higher obstructions to deforming cohomology groups of line bundles*, J. of Amer. Math. Soc. **4** (1991), pp. 87-103.

24. (with L. Ein) *Stability and restrictions of Picard bundles, with an application to the normal bundles of elliptic curves*, in C. Peskine et. al. (eds.), *Complex Projective Geometry*, London Math. Soc. Lecture Notes **179** (1992), pp. pp. 149-156.

25. (with A. Bertram and L. Ein) *Surjectivity of the Gaussian maps for line bundles of large*

degree on curves, in *Algebraic Geometry, Proceedings, 1990*, Lect. Notes in Math. **1479**, pp. 15-25.

26. (with L. Ein) *Syzygies and Koszul cohomology of smooth projective varieties of arbitrary dimension*, Invent. Math. **111** (1993), pp. 51-67.

27. (with A. Bertram and L. Ein) *Vanishing theorems, a theorem of Severi, and the equations defining projective varieties*, J. of Amer. Math. Soc. **4** (1991), pp. 587-602.

28. *Linear series on algebraic varieties*, Proc. ICM Kyoto, pp. 715-723.

29. *Cohomology on symmetric products, syzygies of canonical curves, and a theorem of Kempf*, in Lecture Notes in Pure and Applied Math **145**, Decker (1993), pp. 89-97.

30. (with L. Ein) *Global generation of pluricanonical and adjoint linear series on smooth projective threefolds*, J. of Amer. Math. Soc. **6** (1993), pp. 875-903.

31. (with L. Ein) *Seshadri constants on smooth surfaces*, in Journées de Géométrie Algébrique d'Orsay, Asterisque **218** (1993), pp. 177-186.

32. (with L. Ein and V. Maşek) *Linear series on terminal threefolds*, *Int. Journal of Math.* **6** (1995), pp. 1-18.

33. *Lectures on linear series*, in Kollár (ed), *Complex Algebraic Geometry* IAS/Park City Math. Series **3** (1997), pp. 161-219.

34. (with R. Donagi and L. Ein) *Nilpotent cones and sheaves on K3 surfaces*, Contemporary Mathematics **207** (1997), pp. 51 - 61.

35. (with L. Ein and M. Nakamaye) *Zero estimates, intersection theory and a theorem of Demailly*, in Andreatta and Peternell (eds.), Proceedings of the 1994 Trieste conference in higher dimensional geometry, Walter de Gruyter, 1996, pp. 183-207.

36. (with L. Ein and O. Küchle) *Local positivity of ample line bundles*, J. Diff. Geom. **42** (1995), pp. 193-219.

37. (with L. Ein) *Singularities of theta divisors and the birational geometry of irregular varieties*, J. of Amer. Math. Soc. **10** (1997), pp. 243 - 258.

38. *Lengths of periods and Seshadri constants of abelian varieties*, Math. Research Letters **3** (1996), pp. 439 - 477.

39. (co-editor with D. Morrison and J. Kollár) *Algebraic Geometry – Santa Cruz 1995*, Proc. Symp. Pure Math. **63**, 1997.

40. (with L. Ein and B. Ilic) *A remark on projective embeddings of varieties with non-negative cotangent bundles*, in *Complex Analysis and Algebraic Geometry*, de Gruyter (2000), pp. 165 – 171.

41. (with L. Ein) *A geometric effective Nullstellensatz*, Invent. Math. **137** (1999), pp. 427 - 448.

42. (with J.-P. Demailly and L. Ein) *A subadditivity property of multiplier ideals* Michigan Math.J. **48** (2000), pp. 137 – 156.

43. (with L. Ein and K. E. Smith), *Uniform bounds and symbolic powers on smooth varieties*,

Invent. Math. **144** (2001), pp. 241 – 252.

44. (with L. Ein and D. Cutkosky), *Positivity and complexity of ideal sheaves*, Math. Ann. **321** (2001), pp. 213 – 234

45. (co-editor with J.-P. Demailly and L. Gottsche), *Vanishing Theorems and Effective Results in Algebraic Geometry*, ICTP Lecture Notes, No. 6 (2001).

46. (with L. Ein and K. E. Smith) *Uniform approximation of Abhyankar valuations on smooth function fields*, American J. Math. **125** (2003), pp. 409 – 440.

47. (with L. Ein, K. E. Smith and D. Varolin) *Jumping coefficients of multiplier ideals*, Duke Math. J. **123** (2004), pp. 469 – 506.

48. (with L. Ein and M. Mustata) *Contact loci in arc spaces*, Compositio Math. **140** (2004), pp. 1229 – 1244.

49. (with M. Blickel) *An informal introduction to multiplier ideals*, in *Trends in Commutative Algebra*, MSRI Publictions, vol. 51 (2004), pp. 87 – 114.

50. (with L. Ein, M. Popa, M. Mustata and M. Nakamaye) *Asymptotic invariants of base loci*, Annales de l'Institut Fourier **56** (2006), pp. 1701 – 1734.

51. *Positivity in Algebraic Geometry, I & II.* Ergebnisse der Mathematik, vols 48 and 49. Springer-Verlag, Heidelberg, 2004.

52. *How polynomials vanish: singularities, integrals and ideals.* Informal notes to accompany the 2005 AMS Colloquium Lectures.

53. (with L. Ein, M. Popa, M. Mustata and M. Nakamaye) *Asymptotic invariants of linear series*, Quarterly Journal of Pure and Applied Mathematics, **1** (2005), pp. 139 – 163.

54. (with T. De Fernex and A. Küronya) *Higher cohomology of divisors on an algebraic variety*, Math. Ann. **337** (2007), pp. 443 – 455.

55. (with K. Lee) *Local syzygies of multiplier ideals,* Invent. Math. **167** (2007), pp. 409-418.

56. (with L. Ein, M. Popa, M. Mustata and M. Nakamaye) *Restricted volumes and base loci of linear series*, Amer. J. Math. **131** (2009), pp. 607–651.

57. (with K. Lee and K. Smith) *Local syzygies of multiplier ideals on singular varieties*, Michigan Math. J. **57** (2008), pp. 511-521.

58. (with M. Mustata) *Convex bodies associated to linear series*, Ann. Sci. ENS **42** (2009), pp. 783–835.

59. *A short course on multiplier ideals*, in Analytic and Algebraic Geometry, IAS/Park City Math. Ser. **17** (2010), pp. 451–494.

60. (with M. Popa) *Derivative complex, BGG correspondence, and numerical inequalities for compact Kähler manifolds*, Invent. Math. **182** (2010), pp. 605–633.

61. (with O. Debarre, L. Ein and C. Voisin) *Pseudoeffctive and nef classes on abelian varieties*, Compositio Math. **147** (2011), pp. 1793–1818.

62. (with G. Pareschi and M. Popa) *Local positivity, multiplier ideals, and syzygies of abelian*

varieties, Algebra and Number Theory **5** (2011), pp. 185–196.

63. (with M. Popa and C. Schnell) *Canonical cohomology as an exterior module*, Pure Appl. Math. Q. **7** (2012), Special issue in memory of Eckart Viehweg, pp. 1529 – 1542.

64. (with L. Ein) *Asymptotic syzygies of algebraic varieties*, Invent. Math. **190** (2012), pp. 603 – 646.

65. (with L. Ein and D. Erman) *Asymptotics of random Betti tables*, J. reine angew. Mat. **702** (2015), 55-75.

66. (with L. Ein and Y. Mustopa) *Stability of syzygy bundles on an algebraic surface*, Math. Res. Lett. **20** (2013), pp. 73–80.

67. (with L. Ein) *The gonality conjecture on syzygies of algebraic curves of large degree*, Publ. Math. IHES. **122** (2015), pp. 301–313.

68. (with L. Ein and D. Erman) *A quick proof of the non-vanishing of asymptotic syzygies*, Algebraic Geometry **3** (2016), 211–222.

69. (with L. Ein and D. Yang) *A vanishing theorem for weight one syzygies*, Algebra and Number Theory **10** (2016), 1965–1981.

70. (with F. Bastianelli, P. DePoi, L. Ein and B. Ullery) *Measures of irrationality for hypersurfaces of large degree*, Compositio Math. **153** (2017), 2368–2393.

71. (with L. Ein) *Syzygies of projective varieties of large degree: recent progress and open problems*, to appear in the Proceedings of the 2015 Summer Institute in Algebraic Geometry, Proc. Symp. Pure Math. **97** (2018), 223 - 242

72. *Some remarks on the work of Lawrence Ein*, in Proceedings of conference in honor of Lawrence Ein's 60th birthday, Contemporary Math. **712** (2018), 1 – 8.

73. (with L. Ein) *The Konno invariant of some algebraic varieties*, European Journal of Mathematics, **6** (2020), 420–429.

74. *Journaling*, Notices of the Amer. Math. Soc. **66**, No. 1, Jan 2019, p. 30

75. (with L. Ein) *Tangent developable surfaces and the equations defining algebraic curves*, Bulletin of the AMS **57**(2020), 23–38.

76. (with L. Ein) *Cayley-Bacharach theorems with excess vanishing* in *Facets of Algebraic Geometry*, London Math Society Lecture Notes, **472** (2022), 202–220.

77. (with L. Ein and Huy Tai Ha), *Saturation bounds for smooth varieties*, Algebra and Number Theory, **16** (2022), 1531–1546.

78. (with H. Abo and G. Smith), *Ramification and discriminants of vector bundles, and a quick proof of Bogomolov's theorem*, Rend. Istit. Mat. Univ. Trieste **54** (2022),

79. (with O. Martin), *Measures of association between algebraic varieties*, to appear.

80. (with J. Sheridan), *Torelli theorems for some Steiner bundles*, to appear.