

# CV of Edoardo Sernesi

## DEGREES:

Laurea in Matematica (Università di Roma): 1969

Ph.D. in Mathematics (Brandeis University): 1976

## POSITIONS:

- 1974–1980: Università di Ferrara, assistente ordinario di Geometria.
- 1980–1983: Università di Roma "La Sapienza", professore straordinario di Geometria.
- 1983–1992: Università di Roma "La Sapienza", professore ordinario di Geometria.
- 1992–2017, oct. 31: Università Roma Tre, professore ordinario di Geometria.
- currently Professore Emerito di Geometria, Università Roma Tre.

## PROFESSIONAL ACTIVITIES:

- Member of Scientific Committee of *Bollettino dell'UMI*, from 1989 to 1997.
- Member of Scientific Committee of european research network *Europroj* from 1993 to 1997.
- Direttore del Dipartimento di Matematica, Università Roma Tre, from 1995 to 1998.
- Member of Scientific Committee of *Istituto Nazionale di Alta Matematica* "Francesco Severi" from 1999 to 2007.
- Member of the Reviewing Panel of the Schwerpunktprogram *Globale Methoden in der komplexen Geometrie* from 2000 to 2005.
- Member of the Editorial Board of *Rendiconti del Circolo Matematico di Palermo*.

## PRIZES:

- Premio Tartufari 2016 per la Matematica, Accademia Nazionale dei Lincei.
- Algebraic Geometry Prize 2017/2019 for the paper "On hyperplane sections of K3 surfaces", in collaboration with E. Arbarello and A. Bruno.

## SCIENTIFIC INTERESTS:

Classical algebraic geometry, in particular algebraic curves and their moduli, abelian varieties, Brill-Noether theory, deformation theory.

SELECTED LIST OF PUBLICATIONS:

- “Small deformations of global complete intersections”, *Bollettino U.M.I.* 12 (1975), 138-146.
- “Semicontinuity of L-dimension” (in collaboration with D. Lieberman), *Math. Annalen* 225 (1977), 77-88.
- “Petri’s approach to the study of the ideal associated to a special divisor” (in collaboration with E. Arbarello), *Inventiones Math.* 49 (1978), 99-119.
- “The equation of a plane curve” (in collaboration with E. Arbarello), *Duke Math. J.* 46 (1979), 469-485.
- “L’unirazionalità della varietà dei moduli delle curve di genere dodici”, *Annali Sc. Norm. Superiore Pisa* (4) 8 (1981), 405-439.
- “On the existence of certain families of curves”, *Inventiones Math.* 75 (1984), 25-57.
- Topics on Families of Projective Schemes*, Queen’s Papers in Pure and Applied Mathematics, vol. 73 (1986).
- “Singularities of the theta divisor and congruences of planes” (in collaboration with C. Ciliberto), *J. Algebraic Geometry* 1(1992), 231-250.
- “Singularities of the theta divisor and families of secant spaces to a canonical curve” (in collaboration with C. Ciliberto), *J. of Algebra* 171 (1995), 867-893.
- “Quadrics containing a Prym-canonical curve” (in collaboration with H. Lange), *J. Algebraic Geometry* 5 (1996), 387-399.
- “Nodal curves on surfaces of general type” (in collaboration with L. Chiantini), *Math. Annalen* 307 (1997), 41-56.
- “On the geometry of canonical curves of odd genus” (in collaboration with C. Ciliberto), *Comm. Algebra* 28 (2000), 5993-6001.
- “Recovering plane curves from their bitangents” (in collaboration with L. Caporaso), *J. of Algebraic Geom.* 12 (2003), 225-244.
- “Severi varieties and branch curves of abelian surfaces of type (1, 3)”, (in collaboration with H. Lange), *Intern. J. of Math.* 13 (2002), 227-244.
- “Characterizing curves by their odd theta-characteristics” (in collaboration with L. Caporaso), *J. Reine u. Angew. Math.* 562 (2003), 101-135.
- “On the Hilbert scheme of a Prym variety” (in collaboration with H. Lange), *Annali di Matematica* 183 (2004), 375-386.

- Deformations of Algebraic Schemes*, Springer Grundlehren b. 334 (2006).
- “Nodal curves with general moduli on K3 surfaces”, (in collaboration with F. Flamini, A. L. Knutsen, G. Pacienza), *Communications in Algebra* 36 (2008), 3955-3971.
- “Partial desingularizations of families of nodal curves”, appendix to “On families of rational curves in the Hilbert square of a surface”, by F. Flamini, A. L. Knutsen, G. Pacienza, *Michigan Mathematical Journal*. 58 (2009), 679-682.
- “The hypersurface of Lüroth quartics” (in collaboration with G. Ottaviani), *Michigan Mathematical Journal*, 59 (2010), 365-394.
- “Projective geometry related to the singularities of theta divisors of jacobians” (in collaboration with C. Ciliberto), *Bollettino dell’Unione Matematica Italiana*. (9) III (2010), 93-109.
- “The curve of lines on a prime Fano threefold of genus 8”, (in collaboration with Flaminio Flamini), *International Journal of Mathematics*, vol. 21 (2010), 1561-1584.
- “On singular Luroth quartics”, (in collaboration with G. Ottaviani), *Science China - Mathematics* 54 (2011), 1757-1766.
- “A note on the Petri loci” (in collaboration with A. Bruno), *Manuscripta Mathematica* 136 (2011), 439-443.
- “The work of Beniamino Segre on curves and their moduli”. contribution in *Mathematicians in Bologna 1861-1960*, Salvatore Coen Editor, Birkhauser 2012, p. 439-450.
- “The local cohomology of the jacobian ring”, *Documenta Mathematica* vol. 19 (2014), p. 541-565.
- “Syzygies and logarithmic vector fields along plane curves” (in collaboration with A. Dimca), *Journal de l’Ecole Polytechnique - Mathematiques* vol. 1 (2014), p. 247-267.
- “Mukai’s program for curves on a K3 surface” (in collaboration with E. Arbarello and A. Bruno), *Algebraic Geometry*, 1 (2014), 532-557.
- “General curves on algebraic surfaces”, *J. Reine u. Angew. Math.*, 700 (2015), 209-233.
- “Secant spaces and syzygies of special line bundles on curves” (in collaboration with M. Aprodu), *Algebra and Number Theory* 9 (2015), 585-600.

- “Corrado Segre, Guido Castelnuovo and the Riemann-Roch Theorem”, in *From Classical to Modern Algebraic Geometry, Corrado Segre’s Mastership and Legacy*, 485-495. Birkhauser 2016.
- Excess dimension for secant loci in symmetric products of curves, (in collaboration with M. Aprodu), *Collectanea Mathematica* 68 (2017), 1-7.
- “Equigeneric and equisingular families of curves on surfaces”, (in collaboration with T. Dedieu), *Publicacions Matemàtiques* 61 (2017), 175-212.
- “On hyperplane sections of K3 surfaces”, (in collaboration with E. Arbarello and A. Bruno), *Algebraic Geometry* 4 (2017), 562-596.
- “Gaussian maps of plane curves with nine singular points”. *Annali dell’Università di Ferrara*, 63 (1) (2017) 201-210.
- “The degree of the Gauss map of the theta divisor”, (in collaboration with G. Codogni and S. Grushevsky). *Algebra and Number Theory* 11 (2017), 983-1001.
- “Non-surjective Gaussian maps for singular curves on K3 surfaces” (in collaboration with C. Fontanari). *Collectanea Math.* 70 (2018), 107-115.
- “The Wahl map of one-nodal curves on K3 surfaces”. *Contemporary Math.* 712 (2018), 307-315.
- “A characterization of bielliptic curves via syzygy schemes”, (in collaboration with M. Aprodu and A. Bruno). *JPAA* 223 (2019), 4689-4700.
- “Wahl maps and extensions of canonical curves and K3 surfaces” (in collaboration with T. Dedieu and C. Ciliberto). *J. für die Reine und Angew. Math.*, 761 (2020), 219-245.
- “Severi, Zappa and the characteristic system”. In *Algebraic Geometry between tradition and future*, edited by G. Bini, Springer INDAM Series n. 53 (2023), p. 235-241.
- “Deformations and extensions of Gorenstein weighted projective spaces” (in collaboration with Th. Dedieu) - In *The Art of Doing Algebraic Geometry*. Th. Dedieu, F. Flamini, C. Fontanari, C. Galati, R. Pardini eds. Birkhauser, Trends in Mathematics (2023), p. 119-143.

BOOKS EDITED:

- Opere di *M. De Franchis* (in collaboration with C. Ciliberto).
- Opere di *R. Torelli* (in collaboration with C. Ciliberto and P. Ribenboim)
- Opere di *G. Albanese* (in collaboration with C. Ciliberto and P. Ribenboim).

- *Theory of Moduli*, CIME course, Montecatini June 21-29, (1985) Springer Lecture Notes vol. 1337.

CONFERENCES ORGANIZED:

- *Curves in projective space*, Rocca di Papa, June 3-8, 1985.
- *Algebra e Geometria (1860-1940): il contributo italiano*, Cortona, May 4-8, 1992.
- *10 anni di geometria algebrica in Italia*, Roma, May 27-29, 1993.
- *Europroj 97*, Alghero, June 25-29, 1997.
- *Convegno di Geometria Algebrica dedicato alla memoria di M. Schneider*, Roma, March 20-21, 1998.
- *VBAC 2001 (Geometry of moduli spaces)*, Roma, September 11-15, 2001.
- Special session *Complex Algebraic Geometry* for the Joint International Meeting UMI-DMV, Perugia, June 18-22, 2007. (in collaboration with H. Lange).
- *Perspectives on Algebraic Varieties*, September 6-11, 2010 - Levico Terme (Trento, Italy).
- Workshop on *Curves and their jacobians - State of the Art*, Levico Terme, February 13-16, 2013 (in collaboration with C. Fontanari).  
<http://www.science.unitn.it/cirm/Curves2013.html>
- Workshop on *Curves and Equations*, Levico Terme, February 4-8, 2014 (in collaboration with C. Fontanari).  
<http://www.science.unitn.it/cirm/Curves2014.html>

SOME INTERNATIONAL INSTITUTIONS VISITED giving lectures and/or courses:

Harvard University (sept.-dic. 1979), Universitetet Oslo (Norway), (1982, 2008), University of Warwick (sept.-dic. 1982), Brandeis University (sept.-nov. 1984), Universidad de Barcelona (1985), Queen's University (Kingston, sept. 1985-july 1986), University of Michigan (Ann Arbor, 1986), Universität Erlangen-Nürnberg (oct.-nov. 1988), University of California (Riverside, sept.-dic. 1989), Humboldt Universität (Berlin, 1991, 2009), Universität Bayreuth (1993), University of Amsterdam (1994), KTH (Stockholm, 2001), KIAS (Seoul, May 2005, Oct. 2010), IMPA (Rio de Janeiro, Feb. 2006), Institute Mittag-Leffler (Djursholm, Sweden, Oct. 15 – Nov. 15, 2006), Universidad de Recife, Pernambuco (Brasil), Feb. 2007, Universitetet Bergen (Norway), November 2008, Universidad Complutense Madrid (Sept. 21-26 2009).

RECENT INVITED TALKS AT INTERNATIONAL CONFERENCES:

- *Focal methods and algebraic curves*, course given at the *Workshop on Curves and Jacobians*, Sol Beach Resort, Yangyang (Korea), 18-21/10/2010.
- *General curves on algebraic surfaces*, at *V Iberoamerican Congress on Geometry*, Pucon (Chile), 10-13/12/2010.
- *General curves on algebraic surfaces*, at *Arithmetic and Algebraic Geometry 2011*, Tokyo, 18-22/1/2011.

- *Petri loci and neutral linear series*, at *Groups and Algebraic Geometry - A conference in honour of W. Barth*, Erlangen 26-30 april, 2011.
- *The local cohomology of the jacobian ring*, at *School (and Workshop) on Invariant Theory and Projective Geometry*, from September 17 to September 22, 2012 at the Fondazione Bruno Kessler in Povo (Trento).
- *Deforming curves in  $\overline{M}_g$* , at the workshop *Moduli Spaces in Algebraic Geometry*, Oberwolfach February 3rd - February 9th, 2013.
- *Deforming curves in  $\overline{M}_g$* , at the conference *Vector bundles days*, Pau (Fr) April 11-12, 2013.
- *The jacobian ring of a singular projective hypersurface*, at the workshop *Edge Days*, Edinburgh (GB) june 7-9, 2013.
- *Curves on surfaces and logarithmic derivations*, at the workshop *Recent trends in the geometry of moduli spaces of curves* - SISSA, Trieste, June 13-14, 2013.
- *Mukai's program for curves on K3 surfaces*, at the *Workshop on Severi Varieties and Hyperkahler Manifolds* - Tor Vergata, Roma, November 4-8, 2013.
- *Syzygies of special line bundles on curves*, mini-course organized by the group "Brill-Noether methods in the study of hyper-Kahler and Calabi-Yau manifolds" at the Hausdorff Institute fur Mathematics, Bonn, january 28-30, 2014.
- *The square of the ideal sheaf of a canonical curve*, at the Conference *Algebraic Geometry*, dedicated to F. Catanese, Bayreuth, march 12-14 2015.
- *Syzygies of special line bundles on curves*, at the Conference *Algebraic Geometry at Ferrara*, in honour of Ph. Ellia on his 60th birthday, june 15-18, 2015.
- *Syzygies of special line bundles on curves*, at the Conference *Classification of projective varieties*, Levico Terme (TN), aug. 31 - sept. 4, 2015.
- *A characterization of Brill-Noether-Petri curves lying on a K3 surface*, at the conference *Geometry of Algebraic Varieties*, in honour of A. Verra on his 65'th birthday, Humboldt Universität, Berlin, oct. 6-9, 2015.
- *Algebraic curves and their moduli spaces*, course at the CIMPA school on *Moduli of curves*, held at CIMAT (Guanajuato, Mexico), from 22/2 to 4/3 2016.

DOCTORAL STUDENTS SUPERVISED:

**Maria Grazia Violo:** PhD 1997 at Università di Torino. Thesis: *Varietà con un punto doppio apparente*.

**Flaminio Flamini:** PhD 1999 at Roma La Sapienza. Thesis: *Families of nodal curves on projective surfaces*.

**Luca Benzo:** PhD february 2013 at Roma Tor Vergata. Thesis: *Rational curves on moduli spaces of stable curves*.

**Current address:**

Dipartimento di Matematica e Fisica - Università Roma Tre  
Largo S.L. Murialdo, 1 - 00146 ROMA (Italia)

**e-mail address:** [sernesi@gmail.com](mailto:sernesi@gmail.com)