

Curriculum Vitae of Umberto Zannier

EDUCATION and POSITIONS

Born, May 25, 1957

- 1976/80 - Student, University of Pisa and Scuola Normale Superiore, Pisa.

- 1980/83 - Perfezionando, Scuola Normale Superiore, Pisa (and Teaching Assistant, Un. Illinois).

Then Ricercatore (Padova 1983/1987), Associate Professor of Algebra (Salerno 1987/1991), Full Professor of Geometry (Venice 1991/2003).

- Since 2004: Full Professor of Geometry (Scuola Normale Superiore, Pisa)

MEMBERSHIPS - HONORS

2004 - Elected member (non-resident) of the Academy Istituto Veneto di Scienze Lettere ed Arti.

2005 - Prize: Medal for Mathematics of the Italian National Academy of Sciences.

2006 - Elected (corresponding) member of Accademia Nazionale dei Lincei.

2011 - Recipient of Advanced Grant “Diophantine Problems” (5 years), by the European Research Council.

2012 - Elected member of “Academia Europaea”.

2023 - BIMSA Prize “Best Paper Award” (awarded for a paper with D. Masser), (Organized by S.T. Yau, Beijing, July 2023).

Invitation to several special lectures and lecture-series (see below).

Other

2011: Prize “Premio S. Marco” (Citta di Pordenone) and Member of the Accademia S. Marco (Pordenone).

2011: Honorary member of the ‘Società indologica Pio Tessitori’ (Udine), for promoting scientific cooperation with Indian mathematics.

- The work of Zannier has been the object of two “Seminaire Bourbaki” by Y. Bilu (on the Subspace Theorem) and by A. Chambert-Loir (on Unlikely Intersections).

SOME INVITED LECTURES

2002 - *Colloquium* lecture, Tel-Aviv University.

2003 - Plenary lecture at biennial Number Theory meeting *Journées Arithmétiques*.

2004 - Invited Lecture at ‘Fourth European Congress of Mathematics’, Stockholm.

2006 - Plenary lecture at ‘Number Theory Days’, ETH Zuerich.

2007 - Invitation for plenary lecture at U.M.I. National congress (then declined).

2008 - Plenary lecture at *Giornata INDAM*, Padova.

2009 - Plenary lecture at *Diophantine Geometry*, (in honor of G. Wuestholz), ETH Zuerich.

2009 - *Lezione Lagrangiana*, Torino.

2009 - Plenary lecture at *The Interplay of Algebra and Geometry*, (in honor of C. De Concini) Cortona.

2011 - Plenary lecture at the meeting in honor of W. Schmidt (Vienna ESI).

2012 Plenary lecture at *Arithmetic Geometry and Arithmetic Dynamics* (in honor of L. Szpiro), New York, May 2012.

2012 - Plenary lecture at the biennial Number Theory meeting “CNTA XII”, (Canada).

2013 - Plenary lecture at the biennial Number Theory meeting *Journées Arithmétiques*.

2013 - Plenary lecture at the joint Austrian-German Math. Societies meeting (Innsbruck).

2014 - Invited Section Lecture (Number Theory) at the ICM in Seoul.

2014 - Plenary lecture at Oxford Clay meeting on Functional Transcendence,
 2015 - Plenary lecture at symposium in honor of J. Silverman (August, Brown Univ.)
 2018 - *PIMS Distinguished Colloquium Lecture*, Univ. British Columbia, Vancouver, 2 March.
 2018 - Plenary lecture at *Arithmetic and Analysis*, in honor of C. Deninger, Muenster, 8 April.
 2018 - Plenary lecture at *Automorphic forms and L-functions*, in honour of D. Goldfeld.
 2019 - New York Number Theory Seminar (CUNY Graduate Center, April 4).
 2019 - *Colloquium*, Rochester University, April 10.
 2019 - *Colloquium*, Princeton University, April 17.
 2021 - Plenary lecture at 8-th European Congress of Mathematics (June 2021).
 2023 - Plenary Lecture at workshop *Degeneracy of Rational Points*, SLMSI (previous MSRI).
 2023 - Plenary Lecture at Roman Number Theory Symposium.
 2023 - Colloquium Lecture, Technion, Haifa.
 2023 - AMSS (Academy of Math. and Systems Science) Distinguished Lecture, Beijing.

Several seminars online during the covid period (in particular, Bennett-Habegger-Ostafe seminar - 2 talks, Shafarevic Seminar Moscow, Tel-Aviv, BISTRO seminar in dynamics,...)

Lecture series

2008 - *Nachdiploma Course* ETH (then shifted for personal reasons to a course in 2009).
 2010 - *The Hermann Weyl Lectures* Institute for Advanced Study, Princeton (May 2010).
 2013 - Lecture series at 'Midrasha School', Israel Institute for Advanced Studies.
 2016 - The *Ritt Lectures* (Columbia University, New York, May 3-4).
 2016 - Lecture Series at Alpbach Summer School (with P. Scholze and S. Zhang).
 2017 - *Distinguished Lecture Series* at the Fields Institute - Toronto (Feb. 2017).
 2017 - *Minerva Lecture Series*, series of three lectures, Princeton University, November 2017.
 2023 - Invitation to *Arf Lecture*, Ankara, to be delivered in 2024.

EDITORIAL ACTIVITY

JOURNALS Ed. Board

Acta Arithmetica,
 Analysis, Geometry and Number Theory,
 Annali della Scuola Normale Superiore di Pisa, Cl. Sci. (Director since 2012),
 Bollettino della Unione Matematica Italiana,
 International Journal of Number Theory (Co-Managing Editor), resigned 2018.
 International Mathematics Research Notices (IMRN),
 Journal of the European Math. Society (JEMS),
 Journal of Number Theory,
 Monatshefte fuer Mathematik (MOFM),
 Rendiconti Matematici dell'Accademia dei Lincei, RML,
 Rendiconti del Seminario Matematico Univ. Padova.

Edited volumes:

Analytic Number Theory (Proc. of Amalfi Conference 1989),
Diophantine Approximation (Proc. of Cetraro CIME Conf. 2000, Springer),
Diophantine Geometry (Proc. of Pisa Conf., 2003, SNS),
Colloquia De Giorgi (Pisa, 2006/2012, 5 short volumes, SNS).

On some applications of Diophantine approximations, Ed. Norm., Pisa, 2014, 160 pp.. (Translation by C. Fuchs from the German of Siegel's original 1929 paper on dioph. approx., with a commentary and an article *Integral points on curves: Siegel's theorem after Siegel's proof* by the Editors.)

SOME VISITED RESEARCH CENTERS

AIM Palo Alto, Banach Center Warsaw, CIRM Luminy, ETH Zuerich, Haussdorff Institut Bonn, Institute for Advanced Study, Princeton (1991,1996,1997,1998, 2000-Member,2001, 2003, 2004, 2006, 2010, 2011, 2013), IHES-Paris, Israel Institute for Advanced Studies, Jerusalem, IHP-Paris Prof. Invité 1999), Lorentz Center Leiden, Max Planck Institut Bonn, MFO Oberwolfach, MSRI Berkeley (Member 2014, 2023), Newton Inst. Cambridge UK, Schroedinger Institut ESI Vienna, SISSA-ICTP Trieste.

(Co-)ORGANIZATION of RESEARCH and ADMINISTRATIVE POSITIONS

MEETINGS:

- Analytic Number Theory, Amalfi 1989,
- Diophantine Approximation, Cetraro 2002,
- Trimester in Dioph. Geometry, Centro De Giorgi, Pisa 2004,
- Italy-India meeting in Number Theory, 2009, SNS Pisa,
- ‘The mysterious nature of transcendental numbers’ (Istituto Veneto, Venezia, October 2010)
- AIM meeting 2011 on Model Theory and Unlikely Intersections, CDG Pisa, 2011,
- ERC meeting, October 2011, CDG Pisa,
- ‘Heights’, ESI, Vienna, November 2013,
- ERC meeting, July 2014, Cetraro.
- ERC meeting at Accademia dei Lincei, Roma, May 2015.
- JNT Biennial meeting, Cetraro, July 2019 and July 2022 (with D. Goldfeld, P. Michel, D. Prasad, E. Ullmo).

REGULAR SEMINAR SERIES

- Organizer of ‘Colloquia De Giorgi’ at the Scuola Normale di Pisa (2006–2015).
- Co-organizer of the Oberwolfach and Luminy meetings in Diophantine Approximation (2008–2018).

ADMINISTRATIVE

- Responsible for the International Relationships at the Scuola Normale di Pisa (2007/2009).
- Member of the Committee for Mathematics for election to Academia Europaea (2013-2018).
- 1996/2008: Member of the National research group in Number Theory and Diophantine Problems (Local Director until 2006 and after 2010, National Director 2006/2009). - 1995/2006 - Member of the European Network: ‘Arithmetic Algebraic Geometry’. - 2011/ January 2016 PI of the ERC Advanced Grant “Diophantine Problems (expired Jan. 2016).
- Member of several committees for prizes, meetings (including *Journées Arithmétiques* and ICM - section Number Theory) and for PhD theses.

MAIN COLLABORATORS (quondam):

F. Amoroso (Caen), F. Bogomolov (Courant Inst. NY), E. Bombieri (IAS Princeton), P.B. Cohen (Texas A& M), P. Corvaja (Udine), P. Dèbes (Lille), A.J. De Jong (MIT), R. Dvornicich (Pisa), J.H. Evertse (Leiden), P. Habegger (ETH Zuerich), A. Levin (Michigan State), D. Masser (Basel), A. Perelli (Genova), J. Pila (Oxford), Z. Rudnick (Tel Aviv), A. Schinzel (Polish Acad. of Sciences), W.M. Schmidt (Boulder), L. Szpiro (Paris Orsay and CUNY Graduate Center).

PUBLICATIONS:

PAPERS:

Author of over 200 published research papers (in journals including Acta Math., Advances in Math., American J. of Math., Ann. ENS, Ann. de l’Institut Fourier, Ann. SNS, Annals

of Math., Compositio Math., Crelles J., Duke Mathematical J., International Math. Research Notices, Inventiones Math., J. of Algebraic Geometry, Math. Annalen, Trans. AMS).

An updated list of publications appears in MathSciNet:

<http://www.ams.org/mathscinet/search/publications.html?pg1=INDI& s1=186540>

BOOKS:

- Some Applications of Diophantine Approximation to Diophantine Equation (Udine Forum, 2002), 60 pp.
- Lecture Notes on Diophantine Analysis (Edizioni della Normale, 2005, repr. 2014), 200 pp.
- Some problems of Unlikely Intersections in Arithmetic and Geometry, Annals of Math. Studies, n. 181, Princeton Univ. Press, 2012. 160 pp.
- Lecture Notes on the Elementary Theory of Valuations (with R. Scognamillo, Ed. della Normale). 120 pp..
- Applications of Diophantine Approximation to Integral Points and Transcendence (with P. Corvaja), Cambridge Tract 212, Cambridge Univ. Press, 2018, 198 pp..

OTHER

Contributed to mathematical non-technical articles, e.g. for “Le Matematiche” (Einaudi, 2008), “Terzo Millennio” (Treccani) and “Mathematics and Culture in Europe (Manaresi Ed., Springer Verlag).

Main Scientific Topics

- Arithmetic and Algebra of Polynomials, composition of polynomials, associated diophantine equations.
- Integer points over number fields and function fields. Effectivity issues.
- S-unit equations.
- Heights of algebraic numbers and points.
- Unlikely Intersections in tori and abelian varieties.
- Specialization problems.
- Equations with Torsion Points.
- Integration in elementary terms.
- Families of abelian varieties, topology, complex analysis (Betti map), arithmetic.
- Continued fractions over function fields and p -adic continued fractions.
- Hilbert Irreducibility, Hilbert Property on varieties and associated topology.
- Applications of Diophantine Theory to arithmetic groups.