Curriculum Vitæ of Lothar Göttsche.

Education

Dec., 1997	Habilitation to Privatdozent in Mathematics at Universität Bonn.
May 12, 1992	Ph.D (Dr. rer. nat.) in Mathematics from Universität Bonn. Advisor: F. Hirzebruch.
Jan. 11, 1989	Diplom in Mathematics from Universität Bonn. Advisors: F. Hirzebruch, A. Sommese.

Employment

Since 1.1.2011	Senior Research Scientist in Mathematics at International Centre for Theoretical Physics (ICTP), Trieste, Italy.
Dec. 2001– 31.12.2010	Research Scientist in Mathematics at International Centre for Theoretical Physics (ICTP), Trieste, Italy.
Jan. 1999 – Nov. 2001	Tenured assistant research Scientist in Mathematics at ICTP, Trieste.
Sept. 1997 – Dec. 1998	Tenure Track Scientist at ICTP, Trieste (Italy).
Sept. 1996 – May 1997	Postdoctoral fellow at the Institut Mittag Leffler, Djursholm (Sweden).
Sept. 1995 – Aug. 1996	Postdoctoral fellow at the University of Pisa (Italy).
Aug. 1993 – Aug. 1995	Postdoctoral fellow at the Max-Planck-Institut für Mathematik, Bonn (Germany).
Sept. 1992 – July 1993	Postdoctoral fellow at the University of Trento (Italy).

Long term visiting Positions (at least one month)

April 2015-May 2015	IMPA, Rio de Janeiro, Brasil. Program: Trimester Algebraic Geometry.
Sep. 2011– Aug. 2012	Hirzebruch Research Chair at Max-Planck-Institut für Mathematik Bonn.
Jan. –Feb. 2011	Newton Institute, Cambridge (England). Program: Moduli spaces.
Jan. 2009 – Feb. 2009	Research Professor, Mathematical Sciences Research Institute, Berkeley. Special program on Algebraic Geometry.
Jan. 2008 – April 2008	Member, Institute for Advanced Studies, Princeton. Program: New Connections of Representation Theory to Algebraic Geometry and Physics.
Sept. 2006/March 2007	Visiting Scientist, Institut Mittag-Leffler (Djursholm, Sweden). Program: Moduli spaces.
March 2006	Member MSRI, Berkeley. Program: New topological structures in Physics.

April – May 2002	Member, MSRI, Berkeley. Program: Algebraic Stacks, Intersection Theory, and Non-Abelian Hodge Theory.
Oct. 2001	Visiting Professor, Université Paris Sud, Orsay (France).

Honors

2012	Fellow of the AMS.
2011/2012	Hirzebruch Research Chair at Max-Planck-Institut für Mathematik, Bonn (Germany).
Aug. 2002	Invited speaker, International Congress of Mathematicians, Beijing. Section "Algebraic Geometry and Complex Analysis".
April 1998	James K. Whittemore lectures at Yale University (USA).

Service

Since Sept. 2005	Editor of Geometry and Topology.
Since 2010	Editor of Rendiconti dell'Istituto di Matematica dell'Università di Trieste.
Since 2007-2011	Member of the Scientific council (Fachbeirat) of the Max-Planck-Institut für Mathematik Bonn.
Since 2008	Member of the Program committee, International Centre for Mathematical Sciences (ICMS), Edinburgh.
Since 2009	Member of the Board of ICMS.

Organization of international conferences

(1) *School and conference on intersection theory and moduli*, ICTP, Trieste, 9 – 27 September 2002, scientific directors E. Arbarello, G. Ellingsrud and L. Göttsche.

(2) *A colloquium on Geometry; in honour of M.S. Narasimhan*, ICTP, Trieste 2 – 6 December 2002., scientific directors, A. Beauville, U. Bruzzo, B. Dubrovin, L. Göttsche, C.S. Seshadri.

(3) *Advanced school in basic algebraic geometry*, ICTP, Trieste , 7 – 18 July 2003, scientific directors L. Göttsche, C.S. Seshadri, A. Vistoli.

(4) *School and conference: Modular forms and Mock Modular forms and their applications in arithmetic, geometry and physics*, ICTP, Trieste, 28.2.2011–18.3.2011, scientific directors K. Bringmann, L. Göttsche, D. Zagier.

(5) Member of the scientific committee of "Latin Amercian Concress of Algebraic Geometry and Applications", to be held every 3 years starting 2011.

(6) *Workshop on Geometric Correspondences of Gauge Theories*, ICTP, Trieste 9 September - 13 September 2013. Scientific directors: A. Belavin, G. Bonelli, L. Göttsche, K. Narain, A. Tanzini, G. Thompson.

(7) Coorganizer: *Special trimester in Algebraic Geometry*, IMPA, Rio de Janeiro, Brazil, March to June 2015.

(8) Scientific codirector: *Latin American school of algebraic geometry and Applications*, Rio de Janeiro, Brazil, 2015.

Local organizer at ICTP:

(1) Women in Mathematics Summer School on Mathematical Theories towards Environmental Models, 27 May-1 June 2013.

(2) Summer School and Conference on Hodge Theory and Related Topics, 14 June - 2 July 2010.

(3) Advanced School and Workshop on p-adic Analysis and Applications, 31 August - 18 September 2009.

(4) Summer School and Conference Mathematics, Algorithms and Proofs, 11 August - 29 August 2008.

(5) School and Conference on Algebraic K-Theory and its Applications, 14 May - 1 June 2007.

List of publications
Lothar Göttsche

(1) *The Betti numbers of the Hilbert scheme of points on a smooth projective surface*, Math. Ann. **286** (1990), 193–207.

(2) *Betti numbers for the Hilbert function strata of the punctual Hilbert scheme in two variables*, Manuscripta math. **66** (1990), 253–259.

(3) *Identification of very ample line bundles on $S^{[r]}$*, appendix to M. Beltrametti, A. Sommese, *Zero-cycles and k-th order embeddings of smooth projective surfaces*, in: Cortona Proceedings on Projective Surfaces and their Classification, Symposia Mathematica **32**, INDAM, Academic Press, 1991.

(4) *d-very ample line bundles and embeddings of Hilbert schemes of zero cycles*, with F. Catanese, Manuscripta math. **68** (1990), 337–341.

(5) *Perverse sheaves and the cohomology of Hilbert schemes of smooth algebraic surfaces*, with W. Soergel, Math. Ann. **296** (1993), 235–245.

(6) *Hilbertschemata für nulldimensionale Unterschemata glatter Varietäten*, Ph.D. thesis, Bonner Mathematischer Schriften **243**, 1992.

(7) *The cohomology ring of the Hilbert scheme of 3 points on a smooth projective variety*, with B. Fantechi, J. reine angew. Math. **439** (1993), 147–158.

(8) *Hilbert schemes of zero-dimensional subschemes of smooth varieties*, Lecture Notes in Mathematics **1572**, Springer Verlag 1994.

(9) *Trisecant formulas for smooth projective varieties*, Projective geometry with applications, 81–95, Lecture Notes in Pure and Appl. Math., 166, Dekker, New York, 1994.

(10) *Change of polarization and Hodge numbers of moduli spaces of torsion free sheaves on surfaces*, Math. Zeitschr. **223** (1996), 247–260.

(11) *Weak Brill-Noether for vector bundles on the projective plane*, with A. Hirschowitz, Algebraic geometry (Catania, 1993/Barcelona, 1994), 63–74, Lecture Notes in Pure and Appl. Math., 200, Dekker, New York, 1998.

(12) *Hodge numbers of moduli spaces of stable bundles on K3 surfaces*, with D. Huybrechts, Intern. J. of Math. **7** (1996), 359–372.

(13) *Variation of moduli spaces and Donaldson invariants under change of polarization*, with G. Ellingsrud, J. reine angew. Math. **467** (1995), 1–49.

(14) *Orbifold-Hodge numbers of Hilbert schemes*, in: Proceedings: Parameter spaces, Banach Center Publications vol 36, 1996, 83–87.

(15) *Rationality of moduli spaces of torsion free sheaves over rational surfaces*, Manuscripta math. **89** (1996), 193–201.

(16) *Wall-crossing formulas, Bott residue formula and the Donaldson invariants of rational surfaces*, with G. Ellingsrud, Quart. J. Math. Oxford Ser. (2) **49** (1998), 307–329.

(17) *Modular forms and Donaldson invariants for 4-manifolds with $b_+ = 1$*, Journal of the AMS **9** (1996), 827-843.

(18) *Jacobi forms and the structure of Donaldson invariants for 4-manifolds with $b_+ = 1$*, with Don Zagier, Selecta math., New ser. **4** (1998), 69–115.

(19) *The quantum cohomology of blow-ups of $\mathbf{P}_2$ and enumerative geometry*, with Rahul Pandharipande, J. Differential Geom. **48** (1998), 61–90.

(20) *Donaldsoninvarianten und Modulformen*, Habilitationsschrift, Bonn, December 1996.

(21) *Euler number of the compactified Jacobian and multiplicity of rational curves*, with B. Fantechi, D. van Straten, J. Algebraic Geom. **8** (1999), 115–133.

(22) *A conjectural generating function for numbers of curves on surfaces*, Comm. Math. Phys. **196** (1998), 523–533.

(23) *Theta functions and Hodge numbers of moduli spaces of sheaves on rational surfaces*, Comm. Math. Phys. **206** (1999), 105–136.

(24) G. Ellingsrud, L. Göttsche, M. Lehn, *On the cobordism class of the Hilbert scheme of a surface.* J. Algebraic Geom. 10 (2001), no. 1, 81–100.

(25) L. Göttsche, *On the motive of the Hilbert scheme of points on a surface.* Math. Res. Lett. **8** (2001), 613–627.

(26) L. Göttsche, *Hilbert schemes of points on surfaces.* Proceedings of the International Congress of Mathematicians, Vol. II (Beijing, 2002), 483–494, Higher Ed. Press, Beijing, 2002.

(27) B. Fantechi, L. Göttsche, *Orbifold cohomology for global quotients.* Duke Math. J. **117** (2003), no. 2, 197–227.

(28) B. Fantechi, L. Göttsche, L. Illusie, S.L. Kleiman, N. Nitsure, A. Vistoli, *Fundamental algebraic geometry. Grothendieck's FGA explained.* Mathematical Surveys and Monographs, 123. American Mathematical Society, Providence, RI, 2005. x+339 pp.

(29) L. Göttsche, H. Nakajima, K. Yoshioka, *Instanton counting and Donaldson invariants.* J. Differential Geom. **80** (2008), no. 3, 343–390.

(30) L. Göttsche, H. Nakajima, K. Yoshioka, *K-theoretic Donaldson invariants via instanton counting.* Pure Appl. Math. Q. **5** (2009), 1029–1111.

(31) B. Fantechi, L. Göttsche, *Riemann-Roch theorems and elliptic genus for virtually smooth schemes.* Geometry and Topology **14** (2010), 83–115.

(32) *Invariants of moduli spaces and modular forms.* Rend. Istit. Mat. Univ. Trieste 41 (2009), 55–76 (2010).

(33) L. Göttsche, H. Nakajima, K. Yoshioka, *Donaldson = Seiberg-Witten from Mochizuki's formula and instanton counting.* Publ. Res. Inst. Math. Sci. 47 (2011), no. 1, 307–359.

(34) L. Göttsche, V. Shende, *Refined curve counting on complex surfaces*, Geometry & Topology **18**, 2245–2307.

(35) L. Göttsche, V. Shende, *The χ_y-genera of relative Hilbert schemes for linear systems on Abelian and K3 surfaces*, Algebraic Geometry **2** (2015), 405–421.

(36) F. Block, L. Göttsche, *Refined curve counting with tropical geometry*, preprint arXiv:1407.2901, to appear in Compositio.

(37) F. Block, L. Göttsche, *Fock spaces and refined Severi degrees*, preprint arXiv:1409.4868, to appear in IMRN.

(38) L. Göttsche, B. Kikwai, *Refined node polynomials via long edge graphs*, preprint: arXiv:1511.02726.

(39) L. Göttsche, Yao Yuan, *Generating functions for K-theoretic Donaldson invariants and Le Potier's strange duality*, preprint: arXiv:1512.06648.