

# Christian Schnell

## Curriculum Vitae

June 2016

Address: Department of Mathematics, Stony Brook University, Stony Brook, NY 11794-3651

Phone: (631) 632-8618

Email: [cschnell@math.sunysb.edu](mailto:cschnell@math.sunysb.edu)

WWW: <http://www.math.sunysb.edu/~cschnell>

### Personal Information

Date of birth: February 8, 1979

Nationality: German

### Education and Qualifications

2000 Vordiplom University of Würzburg

2003 M.Sc. Ohio State University

2008 Ph.D. Ohio State University

### Employment

2008–2011 **Research Assistant Professor**, Department of Mathematics, Statistics & Computer Science, University of Illinois at Chicago

2011–2012 **Project Researcher**, Institute for the Physics and Mathematics of the Universe, University of Tokyo

2013–2014 **Research Assistant**, Mathematisches Institut, Universität Bonn (while on leave from Stony Brook University)

since 2012 **Assistant Professor**, Department of Mathematics, Stony Brook University

### Honors and Awards

1998 Scholarship for Specially Gifted Students, Government of the State of Bavaria

2001 Fulbright Fellowship

2008 Presidential Fellowship, Ohio State University

2015 Centennial Fellowship, American Mathematical Society

### Grants

2011 Ch. Schnell, “Néron models and singularities of normal functions”. *Research grant DMS-1100606 (now DMS-1331641), National Science Foundation.*

2014 Ch. Schnell, “Holonomic D-modules on abelian varieties”. *Research grant DMS-1404947, National Science Foundation.*

2015 R. Laza, Ch. Schnell, J. Starr, C. Voisin, “New techniques in birational geometry”. *Conference grant DMS-1506217, National Science Foundation.*

### Invited Talks

2007 *Seminar talks:* Michigan State University, University of Illinois at Chicago

2008 Workshop on Hodge theory, BIRS

Ohio State–Michigan–UIC workshop, University of Michigan

*Seminar talks:* Johns Hopkins University

2009 Symposium on Hodge theory and algebraic geometry, RIMS

Algebraic geometry seminar, University of Illinois at Urbana-Champaign

*Colloquium talks:* Kanazawa University

*Seminar talks:* Purdue University, Queen’s University

2010 Conference on Hodge theory and related topics, ICTP

Show-Me Algebraic Geometry, University of Missouri

*Colloquium talks:* Purdue University

*Seminar talks:* University of Wisconsin, University of Chicago, Princeton University, Stony Brook University, University of Toronto, Harvard University, University of British Columbia

2011 Curves and categories in geometry and physics, IPMU

- Arithmetic and geometry of K3 surfaces and Calabi-Yau threefolds, Fields Institute  
Singularity Theory Conference, University of Science and Technology of China  
Conference on derived categories, University of Tokyo  
*Colloquium talks*: Stony Brook University, University of Alberta  
*Seminar talks*: Osaka University, Columbia University
- 2012 AGNES workshop, Brown University  
Conference of geometry, RIMS, Kyoto  
7th Algebra, Analysis, and Geometry Seminar, Kagoshima University  
*Seminar talks*: University of Illinois at Chicago, Princeton University, University of Tokyo
- 2013 Workshop on mixed Hodge modules, Clay Mathematics Institute  
Recent advances in Hodge theory, University of British Columbia  
Motivic invariants and singularities, University of Notre Dame  
Hodge theory and classical algebraic geometry, Ohio State University  
Recent developments in algebraic analysis, Padova, Italy  
Sanya-Tsinghua Mathematics Forum, Sanya, China  
*Colloquium talks*: University of Georgia  
*Seminar talks*: University of Essen, Columbia University, University of Georgia, University of Massachusetts at Amherst
- 2014 Sixth Iberoamerican Congress on Geometry, City University of New York  
Seminar around algebraic cycles, University of Paris  
Mini-Workshop on Kähler groups, MFO  
Workshop on fundamental groups and periods, IAS  
*Seminar talks*: MIT, University of Paris, New York University, University of Bonn
- 2015 Hodge Theory, Moduli and Representation Theory, Stony Brook University  
Workshop on algebraic geometry, MFO  
Mini-school on geometry, Stony Brook University  
Texas Algebraic Geometry Seminar, Texas A&M University  
D-modules and singularities, University of Padova  
Journées Complexes Lorraines, University of Nancy  
*Colloquium talks*: Stony Brook University  
*Seminar talks*: University of Michigan, Columbia University, Yale University, FRIAS

## Activities

- ◇ I have co-organized four conferences:
  - “Hodge Theory and Classical Algebraic Geometry” (Ohio State University, 2013)
  - “Workshop on Mixed Hodge Modules” (Clay Mathematics Institute, 2013)
  - “New Techniques in Birational Geometry” (Stony Brook University, 2015)
  - “Complex,  $p$ -adic, and Log Hodge Theory and Applications” (Simons Center, 2016)
- ◇ I review papers for *Zentralblatt der Mathematik* and *Mathematical Reviews*.
- ◇ I have been a referee for *Advances in Mathematics*, *Duke Mathematical Journal*, *Forum of Mathematics Sigma*, *Journal of Algebraic Geometry*, *Compositio Mathematica*, and others.
- ◇ I have been on the thesis committee of one Ph.D. student and one B.A. student.

## Publications

### Refereed research papers

1. P. Brosnan, G. Pearlstein, and Ch. Schnell (2010). The locus of Hodge classes in an admissible variation of mixed Hodge structure. *C. R. Math. Acad. Sci. Paris* **348**(11-12), 657–660.
2. R. Lazarsfeld, M. Popa, and Ch. Schnell (2011). Canonical cohomology as an exterior module. *Pure Appl. Math. Q.* **7**(4, Special Issue: In memory of Eckart Viehweg), 1529–1542.

3. M. Popa and Ch. Schnell (2011). Derived invariance of the number of holomorphic 1-forms and vector fields. *Ann. Sci. Éc. Norm. Supér. (4)* **44**(3), 527–536.
4. M. Saito and Ch. Schnell (2011). A variant of Néron models over curves. *Manuscripta Math.* **134**(3-4), 359–375.
5. Ch. Schnell (2011). Local duality and polarized Hodge modules. *Publ. Res. Inst. Math. Sci.* **47**(3), 705–725.
6. Ch. Schnell (2011). Primitive cohomology and the tube mapping. *Math. Z.* **268**(3-4), 1069–1089.
7. Ch. Schnell (2012). Complex analytic Néron models for arbitrary families of intermediate Jacobians. *Invent. Math.* **188**(1), 1–81.
8. Ch. Schnell (2012). Residues and filtered D-modules. *Math. Ann.* **354**(2), 727–763.
9. B. Bhatt, W. Ho, Z. Patakfalvi, and Ch. Schnell (2013). Moduli of products of stable varieties. *Compos. Math.* **149**(12), 2036–2070.
10. M. Popa and Ch. Schnell (2013). Generic vanishing theory via mixed Hodge modules. *Forum Math. Sigma* **1**, e1, 60.
11. M. R. Douglas, D. S. Park, and Ch. Schnell (2014). The Cremmer-Scherk mechanism in F-theory compactifications on K3 manifolds. *J. High Energ. Phys.* **1405**(135).
12. M. Popa and Ch. Schnell (2014). Kodaira dimension and zeros of holomorphic one-forms. *Ann. of Math. (2)* **179**(3), 1109–1120.
13. M. Popa and Ch. Schnell (2014). On direct images of pluricanonical bundles. *Algebra Number Theory* **8**(9), 2273–2295.
14. Ch. Schnell (2014). *On Saito's vanishing theorem*. To appear in *Math. Res. Lett.*
15. Ch. Schnell (2015). Holonomic D-modules on abelian varieties. *Inst. Hautes. Études Sci. Publ. Math.* **121**(1), 1–55.

### Submitted papers

1. Ch. Schnell (2014). *On the locus of limit Hodge classes*.
2. G. Pareschi, M. Popa, and Ch. Schnell (2015). *Hodge modules on complex tori and generic vanishing for compact Kähler manifolds*.

### Papers in conference proceedings

1. Ch. Schnell (2010). “Two observations about normal functions”. In: *The geometry of algebraic cycles*. Vol. 9. Clay Math. Proc. Amer. Math. Soc., Providence, RI, pp.75–79.
2. Ch. Schnell (2012). “The fundamental group is not a derived invariant”. In: *Derived categories in algebraic geometry*. EMS Ser. Congr. Rep. Eur. Math. Soc., Zürich, pp.279–285.
3. G. Pearlstein and Ch. Schnell (2013). “The zero locus of the infinitesimal invariant”. In: *Arithmetic and geometry of K3 surfaces and Calabi-Yau threefolds*. Vol. 67. Fields Inst. Commun. Springer, New York, pp.589–602.
4. Ch. Schnell (2013). *Weak positivity via mixed Hodge modules*. To appear in *Hodge Theory and Complex Algebraic Geometry* (Columbus, 2013).
5. M. Saito and Ch. Schnell (2014). *Fields of definition of Hodge loci*. To appear in *Recent Advances in Hodge Theory* (Vancouver, 2013).
6. Ch. Schnell (2015). “Torsion points on cohomology support loci: from D-modules to Simpson's theorem”. In: *Recent Advances in Algebraic Geometry: A Volume in Honor of Rob Lazarsfeld's 60th Birthday*. Vol. 417. London Math. Soc. Lecture Note Ser. Cambridge Univ. Press, pp.405–421.

### Lecture notes

1. Ch. Schnell (2011). Two lectures about Mumford-Tate groups. *Rend. Semin. Mat. Univ. Politec. Torino* **69**(2), 199–216.
2. F. Charles and Ch. Schnell (2014). “Absolute Hodge classes”. In: *Hodge theory*. Vol. 49. Mathematical Notes. Princeton University Press, pp.469–530.

3. Ch. Schnell (2014). *An overview of Morihiko Saito's theory of mixed Hodge modules*. To appear in *Tsinghua-Sanya International Mathematics Forum*.

**PhD thesis**

1. Ch. Schnell (2008). "The boundary behavior of cohomology classes and singularities of normal functions". PhD thesis. Ohio State University, pp. 1–255.